

Dec 3, 1963

RBC

R. Clapp
1963

Dec. 3. Midway Island, Pacific Ocean.

Arrived midway 1600. Met Jim and got established in BOQ. Walked around and looked at local fauna. Laysan albatross everywhere; Black-foots toward beach. Many rock-doves and canaries obvious by song in Casuarina around buildings. Golden plover and ruddy turnstone present and very tame. Fairy tern and noddies in Casuarina.

Jim further briefed me on Midway-Kure - Walked around and watched albatrosses. Jim says Fisher has worked 6 years on breeding biology etc. and has a grad-student getting PhD on behaviour. Black-foot on other hand has hardly been studied and it is here we should concentrate albatross efforts.

Bill clapping of Laysan is arrhythmic when disturbed, higher pitched than that of deeper-billed black-foot.

Triangular plot by BOQ had 47 albatross 29 occupied nests; one empty nest at 4:30
At 5:30 - 50 birds on area.

(Laysan)
Egg displaced to rim of nest was approached and set upon; accidentally being shifted toward center of nest. Bird made no retrieving motions with bill.

Of 54 sleeping birds 31 slept with head under right wing; 23 with head under left. No population significance? Perhaps should be checked on an individual basis.

Clapp, R.
Dec. 1963 or Jan. 1964

Midway - ~~Eastern~~ ^{Sand} Island

Went down to the over-run area in the afternoon.

Spent some time watching a small feeding flock of shorebirds. (3 Dunlin, 1 Golden Plover (not feeding)

about 15 Ruddy Turnstone, and 2-3 Sanderling)

Ruddy turnstone feed predominantly on the grassy areas near the water; Sanderling in the more

pebbly ground and at the edge of the water; and

Dunlin in the grass with the turnstone. The feeding

movements of each are distinctive. Sanderling make

many relatively widely spaced "surface probes"

moving from point to point in their feeding area.

Turnstone are somewhat similar except that they

seem to probe the ground deeper and more strike

more frequently at the same area. Dunlin, as might

be expected with their longer bills; probe deepest

of all, sometimes apparently "worrying" their bills

into the ground -

2 Green-winged teal seen on grass at edge of long over-run pond at edge nearest to ocean -

R. Clapp
1964

Journal

Green Island - Kure Atoll, Hawaii, Pacific Ocean

Jan. 1. - Spent most of morning and afternoon clearing paths through Scaevola along the northeast edge of the island to facilitate banding red-footed boobies. Got 26 at night although the moon was out and almost full. (About four times as many as when we tried to push our way through the Scaevola) Also recovered a frigate whose too tight band was causing injury to the leg. Although the band was fastened properly it was just too small for the size of the leg. Am discontinuing banding frigates until something can be done about this.

Since the moon did not come up until 8:45 or so we banded Bonin Petrels. () The moon seems to be a major factor determining the number of birds on the island. Also collected one sooty storm petrel on Shearwater Area II. Banded a single, rather thin golden plover on the north antennae field.

Activity study was conducted in morning by King until 9:00 A.M.

After finishing banding; worked at transferring records per Wirtz's request until 2 A.M.

13 Jan.

Time		Light Reading	# Frigate	# Red-footed Booby
1600	H	7.50	44	3
1610	H	7.25	45	3
1620	H	7.00	50	3
1630	H	7.50	52	3
1640	H	6.50	56	2
1650	H	6.50	57	15
1700	H	6.50	57	21
1710	H	6.00	60	20
1720	H	6.25	67	23
1730	H	5.75	70	28
1740	H	5.00	73	33
1750	H	4.75	69	35
1800	H	4.00	78	39
1810	H	6.50	81	41
1820	H	5.00	86	46
1830	L	3.25	86	55
1840	L	3.00	90 ^{est.}	57 ^{est 60}

Only one Frigate seen in flight from ocean after 1835. First Bonin 1840.

Clouds largely obscuring sun. Very cool to cold. Strong wind at level of tower from 1600 to nightfall.

6. Dec. Green Island, Kure Atoll, Heeward Islands

Spent the day surveying, measuring and tabulating the plants on the plant succession study areas.

Completed three plots and a fifth of the fourth.

In the evening Ken and I recaptured the Masked Boobies on the antennae field. There were several reasons for this:

1. It would allow us to make the most accurate population estimates.
2. It would tell us if new birds were entering the population.
3. It would give us an estimate of population structure. (in terms of sex and age structure)
4. It would allow us to tell whether the pairs recorded at time of banding were still functioning as pairs.
5. It would allow us to mark birds by sexes to further facilitate further studies.

Males were marked with a cross bar; females with a dot on the head. Birds unidentifiable or unidentified as to sex were given a longitudinal streak on the forehead.

A single bristle-thighed curlew was seen on the north beach; I hand caught a near starving golden plover which we banded & released and Bonin Petrels appear fairly common in airfield area.

Some Laysans are still dancing and
a pair of Black-foots was also seen
dancing - (or stage of breeding cycle)

Perhaps the population size and
habitat precludes club formation but no
evidence of clubs was seen in the
antennae field area -

Several of the juvenile masked boobies
showed a pronounced flecking on the back!

Apparently some at least are beginning
to molt into subadult plumage.

It would give us an estimate of population
structure (in terms of sex and age structure)

It would allow us to tell whether the
have recorded of time of banding were
still functioning as pairs.

It would allow us to mark birds of
sexes to facilitate further studies.

Males were marked with a cross bar.
Females with a dot on the head. Birds
unidentified or unclassified as to sex
were given a longitudinal streak on the forehead.

A single double-banded owl was seen on
the north beach; I had caught a near identical
bird some weeks ago. I had a record of a
double-banded owl in the field area.

8-Dec.

At about noon took short excursion up beach from pier to south point. 9 seals were on the point including one very small specimen but none were tagged. Two more seals were in the first clump of shrubbery coming back from the point. One was tagged 275. At 1417 Two more seals were in the shrubbery. One was tagged 200

While banding birds with Ken towards this area banded a bird and displaced it from its nest. Ken brought me a second bird from a nearby nest which I banded and released the second bird immediately went to the first nest (about 15 feet from its own) and settled upon it. The first bird returned to the nest, looked puzzled and nudged its head under the second bird and pushed against it lightly. There was no active agonistic behaviour but both birds sporadically bill clapped. Perhaps this is low intensity agonistic behaviour. When we left the second bird was still firmly entrenched on the nest.

9. Dec.

Spent early morning catching up records.

Then went out and banded ~~about~~ 52 birds

○ completing string started yesterday afternoon.

All were haysans. The area covered was the right side of the road going toward the airstrip, the airstrip inner edge facing south and the strip of grass + morning glory type vine between Scaevola running from the airstrip to behind the oil tanks. Of 38 birds banded and 10 recovered 28 birds were not on nests and were presumably non-breeders or prebreeders.

○ Of 10 birds banded on the edge of the airstrip 7 were "loose" birds. A total of 35 out of 48

Journal
R. Clapp

Dec. 10 - Green Island, Kure Atoll, Hawaii - Pacific O.

Spent the morning with Ken nailing down slats on the roof so that it would not blow off.

On Sunday when we had a severe storm the wind against the north end of the shack had begun to pull loose the screws holding the roof on. The job took us until about noon to complete.

While we were nailing the roof down we heard tropic birds calling. Over the area to the south there were six tropic birds in two groups of three calling but not displaying. Frigates were in the air all day in good numbers.

In the afternoon Ken and I tried to resurrect the tower near the north point but found it too heavy for us. Following this we tried to complete the last of the succession study plots but found that the inordinate amount of measuring ran us out of time as it began to rain at quarter of five.

While we were working on the study plot, we made an interesting behaviour observation on the frigate bird and red-footed booby. The frigate-bird was flying overhead trailing about a five-foot strip of vegetation. The booby was chasing it; following every twist and turn of the frigate's flight. The chase lasted for about 15 minutes. The booby would gradually overtake the frigate-bird, (both making poor progress against the wind) and reach down and nip at the trailing vegetation. The frigate-bird would then duck and dodge away, & the red-

Footed Booby would continue to chase him. Both birds
were immatures.

1963
R. Clapp

Journal

Dec. 11

8:50 Antenna Field - In early morning spent some time checking Laysan nests. Picked up Bonin Petrel with badly broken wing. The bird was a female and the ovary was small (5-6 mm.) Saw both Laysan Albatross and Red-billed Tropic Bird on North antennae field. Both should be good skeleton specimens. Albatross skeleton was near J-12, red-billed tropic bird skeleton between J-12 and Moran antenna.

9:00 - 6 adult 1 immature masked booby on north antennae field.

The rest of the morning was spent helping Doctor Fisher catch two seals for the Honolulu Aquarium. Both were small and neither was tagged. One died in cage sometime in the late afternoon and was taken to Midway by Ken.

While out at the south point collecting these seals, a large sandpiper was seen feeding around a fresh water rain-pool near the dump. With it were golden plovers and ruddy turnstones. Subsequently I went back and collected it. It proved to be a species unknown to me. It was about the size of a yellowlegs, with a white - V - shaped rump patch, and greenish grey - legs. The iris was dark brown.

later I saw 6 tropic birds (RT) again in two groups of three; but a member of the crew has told me that he saw a seventh yesterday.

Spent later part of afternoon making sure that all banding schedules were correct & up to date. At about 3 we had a phone-patch

Dec.

to Sundell at Johnson.

○ Dec. 12 Shorebird Census -
low Tide Section -

Lawns around buildings	4 Golden Plover
	1 Ruddy Turnstone
Road to pier	2 Golden Plover
Between K1 and K2	2 Sanderling
	2 Ruddy Turnstone
Between K4 and K5	2 Ruddy Turnstone
" K7 and K8	2 Sanderling
	2 Ruddy Turnstone
○ Dunes on NW Beach	1 Golden Plover
B K10 and K11	1 Ruddy Turnstone
North Point	5 Ruddy Turnstone
	1 Sanderling
Dunes on NE- SE Beach	1 Golden Plover
B K14 and K15	1 Wandering Tattler
Dunes between K14 + K15	1 Golden Plover
Dune at K15	1 Golden Plover
K20	1 Ruddy Turnstone
K26	1 Ruddy Turnstone
B K26 + K27	1 Wandering Tattler
○ K27	3 Ruddy Turnstone
Edge of airstrip	1 Golden Plover
Connecting roads - airstrip - beach	1 Golden Plover
	1 Ruddy Turnstone

Connecting road-beach airstrip

2 Golden Plover

1 Ruddy Turnstone

1 Ruddy Turnstone

1 Golden Plover

3 Golden Plover

20 Ruddy Turnstone

2 Sanderling

1 Golden Plover

4 Ruddy Turnstone

B K34 + K35

○ Dunes - K36

South Point

South Point near dump

By far the greatest proportion of shorebirds at the south point were on the windward side; that is to the east.

Airstrip east edge

5 Golden Plover

2 Ruddy Turnstone

1 Golden Plover

1 Golden Plover

○ Flying over Airstrip

Airstrip west edge

Connecting roads-beach-airstrip

2 Golden Plover

South antenna field (10:00 A.M.)

4 Golden Plover

Road to antenna shack

3 Ruddy Turnstone

4 Golden Plover

North antenna field

13 Golden Plover

16 Ruddy Turnstone

Totals -

○ Golden Plover

49

Ruddy Turnstone

66

Sanderling

7

Wandering Tattler

2

Dec. 12 Shorebird Census
 - High Tide Section -
 Census begun 12:40

Grounds around building
 Road from buildings to pier

1 Golden Plover
 1 Golden Plover
 2 Ruddy Turnstone

K 4 - Flying into dunes
 North Point

1 Ruddy Turnstone
 4 Ruddy Turnstone
 1 Sanderling

K 17 - in dunes

1 Golden Plover

B K 17 + K 18

flying out of Scaevola ^{onto beach}

1 Golden Plover
 2 Ruddy Turnstone
 1 Wandering Tattler

B K 20 + K 21

1 Ruddy Turnstone
 1 Wandering Tattler

B K 23 + K 24 in dunes

1 Golden Plover

Connecting Rd. - beach - airstrip

1 Golden Plover

↓

3 Ruddy Turnstone

" " B K 30 + K 31

B K 30 + K 31

1 Golden Plover

B K 32 + K 33

1 Ruddy Turnstone

B K 33 + K 34 in dunes

1 Golden Plover

K 34

1 Golden Plover

B K 34 + K 35

1 Golden Plover

B K 35 + K 36

4 Ruddy Turnstone

Connecting Rd. - K 35

1 Golden Plover

South Point

12 Ruddy Turnstone

4 Sanderling

Dec. 12 -

Notes on Seal Distribution Around Island

○ One seal in water at north point. Seal on beach at north point tagged 215. Untagged seal on beach in Scaevola at K14. Untagged seal in Scaevola between K14 and K15. Small seal (228) between K16 and K17. Seal 240 on beach at K22. Tagged seal 210 at K26. Untagged seal near K27. Seal 208 near K27. Seal 201 on beach near K33. 2 Seals in water near K36; one on beach in Scaevola (#206)

Two tagged seals at North Point at about 1:00. One was # 264 - On the afternoon shorebird census 14 seals were on the beach at the South Point. Tagged # 201, 206, 251, 243, 275

Journal

Dec. 12

Spent most of the morning and afternoon taking two shorebird censuses, one at high and one at low tide -

Saw four brown boobies roosting on rocks at K27. Also noted a Ruddy Turnstone feeding on seal excrement, right at the edge of the seal. Seal untagged near K 27.

Ten frigates were seen flying low over rocks at beach edge at K 30, one of which was mandibulating a small piece of wood. All were immatures.

Noted at 10:00 A.M.

South Antenna Field 7 adult masked boobies 3 immature

North Antenna Field 11 adult masked boobies 6 immature

24 Brown Booby were seen in flight over the north antenna field - There were also two nesting or post-nesting brown boobies. They had down on the head and were incapable of flight.

While taking the afternoon-high tide census a single Hawaiian Noddy was seen flying across the south point.

At about 3:00 P.M. The south antenna field had 15 adult masked boobies and four immatures. A single bird was seen which was intermediate between immature and subadult phases. The back of the neck and the area above the folded wing contained more brown than is true of most subadults. The rump was largely brown.

At 2:30 P.M. the north antenna field contained 50 adult masked boobies - 6 immatures

Dec. 13 -

As of today, there are 28 black-footed
albatross nests in the loosely colony
on the south point near study nest 22.

1963 Green Is; Kure Atoll, Hawaii, Pacific Ocean
R. Clapp - Journal -

Dec. 15

○ Much of the morning was taken up with records and upon the activity study. Prior to beginning the activity study a single fairy tern was seen flying over the island in the vicinity of the boat pier.

Spent some time during activity study watching displaying haysan at foot of tower. While earlier displaying vigorously at the time of observation they were merely facing one another, frequently dropping bill to ground to manipulate or near manipulate small objects at the surface. There were occasional instances of tucking the bill under the wing but none resulted in the full, rather formal display, with a bill-snap upward. This preening under the wing, while perhaps serving a display function is not ritualized as in the bill snap upward, and the release of the head from under the wing has a very "casual" appearance. Occasional preening of the breast feathers took place by both birds. Shaking + ruffling the feathers also occurred. Besides bowing and mandibulating at ground the birds grab gently at one another's bill and nibble one another around the neck. The aforementioned behavior patterns occur either when the birds are standing up or when both are resting on their tarsi in the sand. One of the two birds neither of which had yet been handled by us, reached down, picked up a small straw; turned its head and put it behind it. Possibly this is some antecedent of nest-building behaviour partially

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R. Clapp

Dec. 15

Journal

incorporated into the display patterns of the species.

Black-footed Albatross Census - 2:00 P.M. - 3:35 P.M.

A total of 335 birds were seen -

Area	# of Nests
Between K1 and K2	4
" K2 and K3	2
" K3 and K4	0
" K4 and K5	5
" K5 and K6	3
" K6 and K7	2
" K7 and K8	0
" K8 and K9	7
" K9 and K10	0
" K10 and K11	0
" K11 and K13 at North Point	27
" K13 and K14	14
" K14 and K15	0
" K15 and K16	0
" K16 and K17	2
" K17 and K18	2
" K18 and K19	2
" K19 and K20	3
" K20 and K21	0
" K21 and K22	1
" K22 and K23 - End of airstrip	15
" K24 and K25	0
" K25 and K26	0
" K26 and K27	0
" K27 and K28	0
" K28 and K29 (Roads conn - acting beach & airstrip)	14
" K29 and K30	0

1963 Green Is, Kure Atoll, Hawaii, Pacific Ocean

R. Clapp

— Journal —

Black-footed Albatross Census

Dec. 15.

Area

of Nests

Between K30 + K31	(on connecting roads-beach + airstrip)	4
K31 + K32		0
K32 + K33		0
K33 + K34		0
K34 + K35		0
K35 + K36		1

South-point - near paved strip near east beach 8

South-point - area ^{1st dune} where study plot 22 is set up 31

South-point - ^{Around} 2nd dune to north with veg. 9

South-point - Between 2nd Dune + 3rd Dune 3

South-point - Around 3rd dune to north with Veg. 3

South-point - Between 3rd Dune + 4th Dune 11

Small dune with vegetation not counted as "dune"

Dunes beginning at K45 8

Between K45 + K46 8

" K46 + K47 10

" K47 + K48 2

" K48 + K49 11

" K49 + K51 12

" K51 + K52 8

" Stake on beach + pier 3

(232) Total Nests - 235

1963 Green Is; Kure Atoll; Hawaii, Pacific Ocean
R. Clapp Journal

Dec. 17 -

Spent morning making a combined census-estimate of Laysan Albatross nests on the island. In afternoon spent several hours on activity study where I made a number of observations on red-billed tropic-bird - flight display -

Four tropic-birds were involved. All had the long rectrices and unspotted backs associated with adults. In the display the wing-beat becomes much more rapid, the bird holding its position in the air or moving slightly backward. The bright red tail is depressed while the body is held at a 30-45° angle above the horizontal. From a number of observations it seems that an important part of the display precedes the above - The displaying bird flies downward and then upward in a small arc with the static hovering being initiated at the end of this arc. Another feature of the tropic bird display which may or may not be a regular part of the display is that two birds will glide in a downward arc for from 50-75 yds. both gradually gliding upward ^{into} the wing-beating display. The degree of depression of the tail varies a great; from being just slightly depressed; to being depressed to such an extent that the central tail feathers actually point forward (at about a 45°) in the direction in which the displaying bird is flying. Contrary to observations on white-tailed tropic bird; there seems to be no attempt to touch the partner in the display with the rectrices.

1963

Green Is; Kure Atoll, Hawaii, Pacific Ocean

R. Clapp

Dec. 17.

[Questions about red-tail display -

In group of four; is display to particular bird
○ or any bird? Is there any general behavior sequence
following display? How do number of displays
within a given unit of time vary with time of
year & stage of breeding cycle? What happens
when all four birds come close together?

How long does a "complete" display take? For

In terms of time; which is more variable the
arc-flight or the hovering?]

12-26-63

12:15 - 26 Brown Boobies roosting along shore at K10
& K11 all but one adult.

12:20 - 150 Frigate on north point roost.
25 red-footed booby

1:20-1:30 7 ad 2 I WAF

20 ad 2 I 1 I-S WAF

27 A 4 I 1 I-S

11 A 1 I 1 I-S SAF

A single sharp-tailed sandpiper, seen in the
interior of the south antenna field. It was seen
clearly through 10x binoculars from a distance of
about 25 feet. The reddish cap & dusky breast
showed up very well.

12 Jan., 1964

RBC

Collected one male baldpate; 1 female European widgeon, 1 dunlin (of three) and 1 Sanderling in over-run area. Missed shot at shoveler. Also seen 3 other baldpate; two green-winged teal.

Left Sand 2:00; arrived Green Is; 2:30. Rest of day spent on paperwork and upon preparation of study skins.

13 Jan -

Day spent on activity and light studies.

Masked Booby Count completed. (See below)

○ One Wilson's Snipe collected by Warren in afternoon - No booby sitting on egg in South Antennae field. Two loose Laysan Albatross banded -

Noted today; that with one outstanding exception all black-footed albatross have dark ~~heads~~ rumps. Warren tells me that blackfoots seen around Oahu have white rumps without exception. Two blackfoots seen with more or less intermediate rump coloration. (Dusky but lighter than normal blackfoot.

○ Collected 6 Laysan eggs from deserted nests.

22-Jan - Afternoon Shorebird Count

○ GAB		1 GP	
○ RTP		1 GP	
K1-K2		-	2 RT
K2-K3			1 RT
K3-K4			1 RT
North Point			3 RT
K14-K15	1 S	1 GP	
K15-K16		2 WT	
K16-K17		1 GP	1 RT
K18-K19		2 WT	2 RT
	(1 RT - ID)		
K20-K21			1 RT
○ K21-K22	1 S		
K23-K24		1 GP	1 RT
K27-K28	(RTAS 2 RT)		
Veg 5	(1 GP ID)		2 RT
South Point	-	5 GP	8 RT
	WB	1 GP	8 RT
WB			4 RT
ESA		3 GP	1 RT
WSA	1 BTC	3 GP	1 RT
SAF		3 GP	3 RT
NAF		10 GP	9 RT
○ RTHS		1 GP	

		Total	
	32	Golden Plover	
51	51	Ruddy Turnstone	
34	2	Sanderling	
17	4	WT	
	1	BTC	
	<u>90</u>		

Journal

1964

Green Island - Kure Atoll - Hawaii - P.O.

Jan. 23

Observation of layman display sequence

From tower. : G - HB + BF - HB - G - HB - BF - NS
- HB - BF - HW - HB - G - HB - BF - BR - HB + BF - G - HB -
NS - HB + BF - BW - HB + F - G - HB + F

- Key - G : groan
BF or F : bill fencing
HB : head bobbing
NS : bill tuck-head snap.
HW : head-wagging.
BR : bill rattling

More detailed
description of
these displays
yet to be
obtained -

Note that in above more stereotyped displays

G, NS, HW, BR, are interspersed in every case with
less ritualized behavior. Observations above are
on a single bird of a displaying pair. Must get
movie camera -

1st body RBC 404 ♂
2nd body RBC 405 ♀

Clapp, Roger
1964

Field Notes

Pago-Pago, Tuitila, American Samoa

Spent first day in Samoa purchasing supplies and working on reports. Saw Red-vented Bulbul in palms in main drag.

Vegetation is much more lush as it is now the rainy season but birds are little in evidence. In the afternoon took a trip with Neal Spencer to his entomology station. With his assistance purchased 8 quarts of formaldehyde solution. This may be obtained at the rear of the hospital at hospital supply (Also for various reasons excellent spot for bird watching; such as they are.).

On the trip saw several banded rails crossing the road. At five went with the rest of the crew (POOP) and those officers that could still navigate to the governor's for cocktails. Very dull, hardly enlivened by the (weak) alcoholic beverages. Very formal (uniformed doorman saluting us, car sent to bring us what was a two to five minute walk).

Man to see for government transportation is the governor's secretary.

Neal Spencer is also very helpful (contributed chloroform and offered to store any supplies we should wish to send to Pago Pago).

March 7--Went up on pass across mountains behind town in morning.

The Collocalia were noticeably less abundant along the cliff face than at our previous visit; their numbers in the tens rather than in the hundreds.

There were many ^{hite-}Wedge-tailed Tropicbirds in the mountain forest and several fruit bats were seen soaring overhead (two collected).

Clapp, Roger
1964

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One of the small bluer gray Kingfishers (Halycon chloris) was seen to fly from the edge of a bank with a small green lizard in its bill. The bird subsequently flew to its nest in the bank and was greeted by a chorus of young birds. The lizard which was about 2 inches long was apparently intended as food for them. On a second trip the Kingfisher brought a katydid - bettigioid type grasshopper to the young.

At the top of the pass was a shorebird in a small 100 square yard area filled with short-grasses and muddy ground. As it flushed it gave the call notes of a Wandering Tattler.

While the swiftlets are usually silent sailing by on slightly down bent wings, occasionally they give a high pitched "twi-tweet" note. Their flight is much more leisurely and graceful than that of the chimney swift. This species sails more.

The Kingfisher nest was located at the top of a 40 foot rock and earth cliff and was dug under the rootlets where the soil overhung the edge of the cliff.

Upon another occasion the Kingfisher brought another grasshopper this one green in front with reddish tegmina.

From the way the bird fed the young at the entrance of the burrow (the young having clambered to the burrow entrance) it seems that the young are probably fairly far along in their development.

During the period in which the adult is absent from the nest the young constantly keep up a buzzy-rasping "aaah" note which makes the nest site very conspicuous.

Clapp, Roger
1964

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On the next feeding I did not see the food species as the bird flew to its nest. After feeding the young it flew by me to the tree on the edge of the cliff and gave several loud alarm calls (much unlike the belled Kingfisher).

Sitting in the tree it gave a number of low pitched calls which might best be syllabilized as a "chuck-a'whew" the last phrase quite faint.

The louder call notes given in flight were harsh and distinct.

March 9--Took a ride around the island from about 4:30 - 6. Shorebirds are noticeably sparse this time. Only four to five (Wandering ?) Tattlers seen in 10 to 15 miles ? of coastline. No Reef Herons seen anywhere along island coast this visit. Also seen along the coastline, one Red-footed Booby, one Brown Booby, one Great Frigate.

March 11--Another uneventful day at sea. Completed all odds and ends necessary for going ashore at Jarvis. A total of thirty birds seen from 7:30 to 1808 and very few by me. (fourteen Wedgetail, three White-tailed Tropicbird, three Noddy, four sooty, and two Fairy Tern; one immature Red-footed Booby).

So far our at sea observations between Samoa and northern islands have been notable in five respects.

1. Relatively few birds have been seen.
2. Fairy Terns have been relatively abundant
3. There have been mostly (mixed tern flocks)
4. Pterodroma have been infrequent.
5. Almost all tropicbirds have been White-tailed.

Clapp, Roger
1964

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March 14--Landed on Jarvis about 9 and set up camp in the building left by the IGY. Cats are plentiful and relatively "tame". One of their major retreats is the building. When we cleaned it out, we found many birds feathers indicating their diet. Among those feathers readily identifiable were a number of sets of wings of Sooty Tern. A young booby was found (sp.) and in later explorations under the house, we found the carcass of a young Red-tailed Tropicbird. In the afternoon Fred spent much time shooting and retrieving cats under the house. In the evening he spent most of his time chasing cats around the island getting some thirty in all (from many of which blood samples were taken. Stomachs examined were found to contain feathers.

After setting up camp we ran the usual survey of the island. Boobies are very abundant (perhaps 750 Brown Booby 2500 Red-footes and 5500-6000 Masked Boobies. The majority of Masked Boobies are pre-breeding (In pairs and territorial although few eggs have been laid.). The Red-foots are slightly more advanced in their cycle, although most nests are empty. Many Red-foot nests on the island are placed flat on the ground. Others are placed low (8 - 12") in small Sida bushes; with not even a "platform" of sticks under their nests. (Very possibly it indicates that Red-foots have colonized this island "recently"). Several nests (but by far the minority) are placed on elevated areas such as barrels, or perhaps the framework of the weather station left by the IGY. All boobies on the island (except Brown Boobies which are apparently "congenitally nervous") are much tamer than on other islands.

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Last night I banded 505 Masked Boobies (largely from an enormous club of 800 or more). And was able to walk erect through them causing only faint disturbance. A very pleasant contrast to Enderbury.

A total of about twenty-four interisland recoveries were obtained. None of these birds were neck-ringed. I think that this tends to imply that these birds were not on their islands of banding origin when we came through for our recovery rate was high enough on some of these islands. So it seems likely that at least one out of twenty-five would have been marked. These birds were possibly "visiting" the island on which they were banded when banded. This is highly hypothetical. None of these interisland birds had any trace of "subadult" plumage but the 4-6 whose voices we recorded all have female voices.

Also spent some time examining the seawreck for Molluscan fauna. On the West Beach at least this fauna is extremely impoverished. A few morula, a few "Hermit-crab" turbans and three species of small cowries were obtained (one Cypraea caput-serpentis). Two species of Conidae were seen in the sea-wrack. One (a small purplish species; the other was Conus ebraeus). This latter, which on the Phoenix Islands, was one of the commonest forms in the sea-wrack is quite scarce here. I later examined the rock-bordered pools (there are several blowholes) at about noon but the number of living shells were very scant (only two or three seen all encrusted, one a very worn morula). The few other shells seen were inhabited by the hermit crab with blue and black barred legs but shells are at such a premium that one individual was seen to inhabit a much battered and broken shell.

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However, a beach party (according to Huber) obtained some interesting specimens from elsewhere on the island (including some fresh "trumpet" shells, so there is some possibility of obtaining some interesting specimens.

March 15--Spent the morning insect collecting and cataloging. The insect fauna of Jarvis is unremarkable and shows close affinities with many of the Phoenix Islands. The ubiquitous "two-bar" moth is here (although in much diminished numbers) and the dermestids, orb weavers, greenbottle flies, cockroaches, and earwigs all appear to be similar. There seem to be relatively more species of spiders (about 6 taken). Three or so species of piercing, sucking bugs are present.

Among insects which we have not found on the Phoenix Islands are a small Pentatomid (or Portulaca) and a small black and white leafhopper (on Tribulus).

In the afternoon we resurveyed those nests which we had not covered earlier.

That evening I banded 460 masked boobies but my hand was so sore that it was a very painful experience.

Sibley and company accounted for another fifty cats in the afternoon but they seem nearly as abundant as ever.

March 16--Sacked out much of the daylight hours. Huber and Hackman ran shorebird count in the morning. Only Wandering Tattler and Golden Plover were observed. Many Golden Plover were in breeding plumage.

Clapp, Roger
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Cat killing and insect collecting proceeded as usual. Forty-eight cats killed today.

Huber found a number of interesting live shells a Cypraea lynx (alive, I think) which had a generally darker surface coloration than others of this species I have seen. He also found a number of money cowries which were about the maximum size (about 1 inch). Smaller specimens of this species appear to have a whitish cast to the shell while larger individuals have a pronounced yellowish color.

Went out and banded masked boobies again this evening. Did 343. Birds now relatively hard to get but managed to finish second string; do third string, and 43 of Doug's bands in an enormous club (some 1100-1300 birds) near the north end of the island. A number of these birds were color-marked from previous nights.

Arose about 7:30 and went cat-hunting with Nick and Big Charlie. Saw relatively few cats four, which we got. One of the four was a kitten and I demurred at giving the final blow but Nick was only too glad to oblige.

Collected about seven Brown Booby eggs, (two singles, five eggs the fresher appearing of two) and three Masked Booby eggs. One of the latter was a "freak" egg only about 1/2 the normal size. In addition it lacked the usual chalky coating. It contained (when prepared) a normal yolk but the egg white appeared proportionately thicker. These eggs plus all red-foot eggs collected on the 15th were all fresh.

Along the northwest shore the reef (a short distance north of Millersville) has a large number of lat rocks which Nick and I examined for shells. Several live money cowrie were found (as well as what

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appeared to be a morula with spines on the shell.). Only a total of about four species of shells were seen.

Tropicbirds were present at nest sites (three or four) under the corrugated metal-roof remnants of Millersville. Since cats were also found in numbers at this area it appears that adult tropicbirds are "cat proof" unlike frigates and sooty terns.

March 18--Went out in early morning banding tropicbirds and killing cats with B. Charley. Banded eighteen tropicbirds representing as many nests. All were pre-laying. Killed some fourteen cats. Two litters found in the many dens we dug out. (One litter of one, one of three).

Banded Masked Booby and Brown Booby with Nicki and Redgie that evening. Got 171 MB, 15 MB. Banding difficult birds getting jumpy and while moon (1/4 full) was up; about three out of four birds along the beach flew. Tropicbirds seen displaying.

March 19--Left island at about noon. A total of 6810 birds banded of which I did 2074 (sixteen Brown Boobies, eighteen tropicbirds, and 2040 Masked Boobies.).

Got on ship, ate dinner, and collapsed into my rack where I slept the sleep of the exhausted until supper.

Packed some supplies for Christmas; but left job uncompleted as we do not yet know our conditions of going ashore.

March 26--Fanning Island, Line Group, Pacific Ocean

Somewhat overwhelmed by the effusive welcoming of the Copra plantation manager on Fanning we stopped for a beer. This gentelman, one Palmer has been on this island since 1936.

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His residence is pleasant, open, and airy and the momentos hanging on the walls all remind one of the tropical pacific. Shark teeth; sword-fish bills, turtle shells, barracuda heads, and native artifacts cover the walls:

His book shelf was varied but plebian and exhibited nothing that would indicate he had any particular interests other than copra. (although he had a series of novels by a S. Colon about one "Angelique" a buxom blue-eyed blond type who seemed decidedly dull (the sort of thing bourgeois day-dreams are made of.).

Over the door was a ship's speed indicator whose ringing brought quiet and efficient Gilbertese servants.

He also had several Trochas shells which he brought with him from the Solomons. A top shell to end all top shells. They are worth some \$400 a ton and are usually harvested heavily in the first few years a coconut (copra) plantation is running.

Numerous tabbies wandered around the legs of the wicker chair. It was quite amusing to watch Catstomper Larry Huber sitting and fondling them. (And also slightly nerwracking)

Biologists were here for three months last year. Purpose? Their report?

According to the Copra manager ducks are seen quite commonly on Washington arriving some time in November. They arrive, thin, in poor condition, feed until fat, and then migrate onward. Apparently they are regular visitants to Washington.

Clapp, Roger
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Fanning Island, Line Group

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March 28--Went out in early morning and collected eight Red-footed Boobies and one White-tailed Tropicbird. On the way saw a single male F. ariel flying over.

Packed up and headed for boat. Fred and I stopped at Palmer's for refreshments where I was regaled with the S. African version of "Rodger the Lodger". Oh well.

Then we toured part of the island with Palmer. The area (to left of passage facing island) we went through was more open and grassy under the coconuts than in our area. We looked over the buildings left (January 14, 1963) by Cable and Wireless Ltd. Probably 30+ species of introduced plants in this area. Dragonflies were very abundant some 100-150+ being visible at any one moment. A single butterfly (sp?) seen.

Returned to ship, skinned birds and packed for next island. Two Laughing Gulls were seen at lagoon entrance; a total of 5+ occurring on the island.

March 29--Washington Island, Line Group

Stopped and ~~chatted~~ for short spell with Bill Fries the island manager.

Some 370 natives on the island who seem to have a mania for pets. Apparently before increase of cats each Gilbertese had from two to six or so lorikeets. They were frequently taken from nest and raised in half-coconut shells. They were fed green coconut milk and papaya juice. (And apparently survived well on the diet.)

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At the present time frigates are frequently "pets". Each hut has one or more perches each with its own bird on it. All appeared to be immatures.

March 30--Ran a census along the west shore for approximately 2 miles to get a general idea of relative densities of the various species.

Results:	Blue-gray Noddy	3
	C.I. Warbler	7
	W.I. Lorikeet	22
	Fairy Tern	13
	Common Noddy	17
	Frigate sp.	3
	WTIB	3
	Red-foot	37
	Hawaiian Noddy	18

A total of seven Hawaiian Noddy nests were seen, five of which were well established. The other two were being built. All were in tall trees with light-green leaves like

Noted in a group of lorikeets that birds are continually raising and lower crests at one another (get further notes). Birds both walk and sidle along limbs.

The warblers are feeding young out of the nest. Young can be identified by their short ragged tails and persistent "chee-chee" food begging call. Perhaps this is why the warblers are not singing at this time. (N.B. many of the specimens collected yesterday are in molt). Family group in which the above was noted was comprised of two adults and two young.

The movements of the warbler remind one more of a kinglet or a vireo than they do of a Parulid. In one instance the bird perched in a tree over me and peered and craned its neck much as does a red-eyed vireo.

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Insects are frequently taken by flying at a leaf. The birds respond well to a wet squeak which sounds a good deal like the food begging call of the young.

One Hawaiian Noddy gave a bill down followed by a gape and a loud squeal (which was the unidentified bird call I heard on Fanning.).

April--Palmyra

Entering the harbour many Red-footed Boobies were seen on a small island to the left. After we set up camp I followed the perimeter of the island looking for Red-foots but found none. On this 45 minute excursion saw many Bristle-thighed Curlew; Golden Plover, and Wandering Tattler. Several Ruddy Turnstone were also seen.

Following this Fred and I went out to get Red-foots for blood samples. There appear to be a fair number (3 to 5 percent) of northern Red-foots on this island. Two of twelve specimens collected were this form. For the most part red-foots are not breeding. Two nests investigated contained nothing and a small bird respectively.

Common noddies are nesting at various areas in young coconut palms. One egg which was opened was fresh. Since this island has no systematic coconut harvest as did the last two there are a relatively large number of young coconuts.

Sooty Terns nest along the runway. The young are generally well developed and very many are capable of flight. 1298 nestling and 100 adults were banded that night by Doug and myself as well as two Golden Plover. Golden Plover seen here do not have black fronts but head coloring is richer than in winter birds. Are these immatures which have not yet gone north?

Fairy Tern are relatively sparse. One was seen incubating an egg in a tree. It flew only reluctantly.

Fair numbers of brown boobies are present and are breeding (primarily on the rocky causways .). Most pairs have small to medium young although nests with eggs and very large young (really immatures with only tufts of down) were seen.

It rains almost constantly which hampers my banding considerably. My glasses fog up so badly I cannot see the birds at more than a few feet. Because of this I inadvertently stepped on several Sooty Tern nestling but they were not injured. A surprising number of nestlings seen to suffer from wing deformities five to seven seen. Although this is certainly subjective it more seems injured than in other nestling groups I have banded.

Geckos of at least two species are reasonably common and may be readily obtained from the inside of windows of the many houses. The island also has a population of toads which may be most readily seen and captured in the rain on the airstrip. Rats also occur (one collected).

Much land surface in the open is covered by a rather revolting algae? which looks rather like rotten brussel sprouts.

Fish fauna is varied and abundant. Several triggerfish I had not seen before; puffers are very common, and so are two other sp. (black fin and compressed blue) which I do not know.

R. Clapp
1964

Marshall - Gilbert

October - November 1964

Oct. 1 - Honolulu and 1st part day at sea.

Morning spent checking out of hotel, rounding up goods etc, and getting personal belongings established on the Shearwater.

Boat departed at 1500, making a spectacular 180 degree turn in the narrow channel leading from where the boat was docked. Rocks on one side of the channel, a large freighter on the other. Churned up a great deal of mud, and barely missed the other ship. A wacky maneuver but they made it.

Sea watch started at 1520 as we left the harbour. Watch schedule set up with an experienced and one not so experienced watcher in three teams which watch for two hours at a stretch. (Huber and I, Ken Amerman and George Wislocki, Binion Amerson and Phil Lehner.

155 Wedge-tailed Shearwaters were seen today as the trip began. Most of these birds were seen within sight of Oahu. Wedgetails were a component of every flock seen today (9) but one. However only 76 of the total wedgetails were in flocks (%) In the three feeding flocks in which they occurred wedgetails in every instance were associated with common noddies which in every case were numerically much more common (tending to represent about 90 % of the flock total. The earliest flock seen at 1537 had a brown booby associated with it. Of the five "travelling" flocks of wedgetails, 2 were headed ENE and 3 NE.

A single White-tailed Tropic Bird was seen at 1750 flying ENE.

Oct. 2 - Two days out of Oahu - Gilbert-Marshalls

A relatively slow day. 337 birds were seen. Several unusual birds were seen including a putative Herald's Petrel and a Skua.

73 Wedgetails were seen 38 of which (%) were in flocks. In the flock seen at 1312 a number of birds were sitting on the water. Some of these Wedgetails were preening and washing in the water.

A single Newell's Shearwater was seen flying SE by Amerson and Lehner at 1017.

A total of 37 Sooty Shearwaters were seen heading in a generally southerly direction. None in flocks.

R. Clapp
1964

Oct. 3 Three days out of Oahu - Gilbert - Marshalls

Few birds (149) seen. Very probable Pale-footed Shearwaters seen and a somewhat shaky Slender-billed Shearwater. Movie : Maniac - gaaah.

Wedgetail numbers continued to decrease with 44 birds seen today with 30 (%) of these seen in one flock. In this flock Wedgetails associated with Sooty Tern, "Bonin" Petrel, Pale-footed Shearwater, Common Noddy, and White-necked Petrel.

At 1659 a bird flew across the bow of the ship which may have been a Slender-billed Shearwater. Its flight reminded me of the Sooty Shearwater but the underwings were seen well and were much too dark for the bird to have been that species. The bird was all dark, with a dark bill, and appeared smaller than a Sooty Shearwater. Binion Amerson, who also observed the bird, was adamant that it was not a Christmas Island Shearwater or a Wedgetail. However, the foot color was not observed. The sun was not shining at the time. The only birds it could have been are these two species.

A single Newell's Shearwater was seen flying SSE by Amerman and Wislocki.

12 Sooty Shearwater were seen today, none of which were in flocks.

Oct. 4 Four days out of Oahu - Gilbert - Marshalls

Fantastic increase in bird numbers caused by large flocks of Sooty Shearwater. 975 of this species were seen. Two more pale-footed Shearwaters were seen and 2 very probable Peale's Petrels.

Wedgetail numbers showed a slight increase to 62 individuals. 25 (%) were found in a flock mixed with Sooty Tern, White-necked Petrel, and a single Fairy Tern.

R. Clapp
1964

Oct. 4 Four days out of Oahu, - Gilbert-Marshalls

Two individuals, possibly Peale's Petrels were seen by Huber and myself, one at 0830 and one at 0855. The one seen at 0830 was seen but poorly by me. It was gray on the back, with gray black on the abdomen, and possessed white under-tail coverts and rear of ventrum. It had a white black bordered underwing like a Bonin Petrel and the flight was reminiscent of that species.

The second bird was seen by Bihion Amerson who noted the darkening on the belly. The bird fit the description in Alexander but did not appear that dark dorsally. Light upperparts, grayish black on abdomen, white towards undertail area, and with a Bonin type underwing.

Of the 975 Sooty Shearwater seen today 886 (92 %) were seen in a total of 31 flocks.

Numbers of Observations of Different Size Flocks

1-10	: 51	31-40	: 7	61-70	: 1
11-20	: 6	41-50	: 4	71-80	: 0
21-30	: 8	51-60	: 1		

The first flock of 30 plus or minus was seen at 0940. Flock sizes ranged from 6 (1755) to 62 plus or minus 2 (1623)

Oct. 5 Five days out of Oahu - Gilbert-Marshalls

Sooty Shearwaters still abundant. 834 seen today. A Ruddy Turnstone came aboard the ship and died this evening. A Red-tailed Tropic bird came aboard at 10:30 P.M.

Numbers of Wedgetails swelled to 88 today with 33 (37 %) being found in flocks. The flock at 1445 was comprised of 26 Wedgetails and 15 Sooty Tern, all travelling South.

Of the 834 Sooty Shearwater seen today 804 (96 %) were in flocks. A total of 39 flocks were seen today ranging in size from 6 (0816) and 5 (1817) to 75 (1329)

Oct. 5 Five days out of Oahu - Gilbert-Marshalls

Number of Observations of Different Size Groups

1-10 :	31-40 :	61-70 :
11-20 :	41-50 :	71-80 :
21-30 :	51-60 ::	

No Red-tailed Tropic Birds have been seen at sea for the prior four days, while a total of three were seen today.

0646 - 1 - flying E

0821 - 1 - flying N

1100 - 1 - flying N

At 2230 one individual of this species came aboard ship, was banded and released. This at least demonstrates that some tropicbirds fly at night but the birds peculiar behaviour after banding might indicate that this is not usually the case. At first, when captured, the bird showed about the usual amount of resistance to be expected in this species. But when Binion Amerson, standing on the boat deck, cupped the bird in his hands and released the wings the bird would not fly and only sat there docilely (for five minutes or more as we debated what to do with the bird) It could be stroked on the back and head without arousing its ire but it seemed otherwise alert. Finally it was thrown into the air and it flew away. It was heavily infested with ectoparasites.

R. Clapp
1964

Oct. 6 Six days out of Oahu- Gilbert-Marshalls

Very great dropoff in number of birds seen.
(Only 166) Several Bulwer's, One Christmas
Island Shearwater seen, another possible
Peale's Petrel. Only 137 Sooty Shearwater seen.
Movie: King Kong vs Godzilla - gaaah- plus,

Oct. 7 - 10

For relevant data see daily summary sheets.

R. Clapp
1964

Oct. 10 - Taongi Atoll, Marshall Islands

Arose at 7:30 and when I reached the flying bridge Taongi was in sight, a possible? Lesser Frigate was seen and Blue-gray Noddies and white-phase Wedgetails were seen. One immature frigate dove repeatedly at the fishline trailing the ship for about a minute. No Black-naped Terns were seen along the reef. From a distance the islands of this atoll did not look promising for birds as the number of birds over the islands seemed much scater than on the "good" Phoenix Island bird islands.

Sibylla Island

Off the atoll to the west in the morning both Phoenix phase and white-phase Red-footed Boobies were seen flying beyond the edge of the reef.

At 1445 a feeding flock was seen as we approached the reef to again try the passage into the lagoon. The refoots seen were mostly white-phase but Amerson saw one Brown-phase bird.

On the evening on Sibylla we banded redfoots and kept track of ratios of different phases. Of 179 adult birds banded, 171 were white phase, 2 were brown phase and 6 were Phoenix phase. Several instances were noted of Phoenix phase birds mated to white phase birds. (737-80017, 80041, 80053)

One fully adult (from general plumage pattern tail color, and soft-part coloration) white phase reffoot (with a golden head wash) possessed an intermediate tan eye color. Face part colors were quite bright, gular pouch black, and feet were medium red in color.

Apparently there are several types of immatures or subadults as the case may be. One bird, 737-80075, was generally of the appearance of a white phase bird except that the back, wings, and tail had mottled brown on them. Termed in further discussion as "immature white phase" (better Suba.)

R. Clapp
1964

Oct. 10 - Taongi Atoll, Marshall Islands

Also to be noted with interest is that the red-foots so far encountered are a diminutive form similar to that found in the Phoenix Islands and not at all as large as Leeward red-foots

A second all white and black "white phase" bird was seen with a "tan" intermediate iris. This bird was one of a pair so possibly adult although the pair did not have a nest.

Several of the adult white phase birds were noted as having the "chestnut" dark-brown iris typical of the species except for the outer circumference of the iris which was lighter in color approaching gray-brown.

Further observation showed this to be true of all adults investigated although Huber is adamant that this is not the case in Phoenix Island birds.

Perhaps 20 % of the red-foots on this islet have nests. Three nests in which the single egg was candled against the headlight apparently were fresh.

At 11:18 a single white phase reef heron was seen flying along the outer reef. Shortly afterwards was seen with another white phase bird. A third white phase bird was seen further along on the reef and yet a fourth still further along.

Use of the reef by herons is apparently predominantly at low tide as no individuals were seen on the reef at about 1330 when the 2nd attempt to breach the channel was made. Certain areas of the reef still appeared to have a low enough water level so that the birds would not be swamped by tidal waves.

R. Clapp
1964

Oct. 11 Sibylla Island, Taongi Atoll

Spent the morning exploring the southern end of Sibylla Islet and the next islet to the south. Stopped and did not go onto the final islet which was barren of vegetation as we had to be back for a radio check at 3:00.

The second islet, the one below Sibylla, was quite barren. Only Red-tailed Tropicbirds were nesting on it under the Scaevola. A fairy tern nest was seen about 4 feet up on the horizontal branch of a Messerschmidia.

Molluscs were uncommon in the sea wrack but two kinds of killer clam shells were seen on the lagoon side of the island. One was the sort seen in the Phoenix Islands.

Several small cones similar to Hebrew cones were found in the sea wrack and a larger form was found in front of camp.

R. Clapp
1964

Oct. 11 Sibylla Island, Taongi Atoll

Redfoots are apparently breeding to some small extent and others are coming into breeding condition. Quite a number were seen carrying nesting material and quite a few were being chased by frigates (males as well as females.)

Several male great frigates had inflated throat pouches.

Estimates for that part of Taongi with which I am familiar :

Great Frigate :	4000-5000	breeding
Red-footed Booby	3000	breeding
Blue-faced Booby	400	few breeding
Brown Booby	400	none breeding
Bristle-t-Curlew	50	
Wandering Tattler	150	
Golden Plover	200	
Ruddy Turnstone	250	
Fairy Tern	400	
Sooty Tern	?	
Common Noddy	200	
Hawaiian Noddy	300	
Reef Heron	25-30	
Crested Tern	25-30	
R.T. Tropic Bird	400	
Black-naped Tern	25	
Blue-gray Noddy	?	

Three ducks were seen beating over the island toward the center of the island from the S_w. All were female or winter plumage birds. I did not get a good look at them but all very large and brown, probably Anas, possibly acuta. A Male Frigate was observed displaying from the nest. The pouch was fully expanded and the head thrown back until the bill pointed towards the slightly elevated tail. The wings were spread and quivered ululates.

By far the greater number of great frigate nests were found in Messerschmidia from 4-10 feet up.

R. Clapp
1964

Oct. 11 Sibylla Island, Taongi Atoll

Four Black naped Terns were seen in an open area between the southern end of Sibylla and the next islet. They would be very difficult to distinguish from Fairy Tern at any great distance. The most distinctive identifying "mark" is the call which is typically rasping "Sterna" in nature.

Of three reef herons seen on this morning's excursion one was white and the other two were intermediate "mottled" forms.

R. Clapp
1964

Oct. 12 Sibylla Island, Taongi Atoll

Arose at 6:30 and collected 5 Wandering Tattlers on the windward side of Sibylla.

Of particular interest was the similarity of molt in these birds. With the exception of 30013 these birds were essentially the same in their molt. Counting from outward-inward primaries 6-10 (30010-30012) and 7-10 (30009) were the primaries involved in molt. In two 6 was absent; in one 6 was in sheath and in one 7 was in sheath. 8-10 were new feathers. These could be easily distinguished by the blacker color as well as the lesser wear.

There was no tail molt except for one individual which was replacing one of the central rectrices of the 12.

Conclusions :

1. Primary molt initiates the replacement of flight feathers and begins before either secondary or rectricial replacement begins.
2. Replacement in the primaries is proximal-distal beginning with P 10.
3. Primary coverts are replaced with their primaries.
4. The preceding feather in the primary molt sequence is partially out of sheath or well grown in sheath before the next primary is dropped.
5. Apparently no more than 2 primaries are non-functional during primary molt.
6. Light body molt is occurring on all birds on about Oct. 12 in the Marshalls.

In the afternoon collected some frigate egg white, molluscs, and banded Fairy Tern and R.T.T. Bird.

The single Golden Plover collected by Huber in the morning was generally not in molt. A few body feathers were in sheath and two rectrices were in sheath (L2 and R1. All the other tail feathers appeared old.

Crested Tern nests were found on the northern beach of the islet by Binion's party. Some 7 eggs, about 12 adults.

R. Clapp
1964

Oct. 12 - Sibylla Island, Taongi Atoll

Possibly male frigates with red-throat pouch and white on the chest may be breeding birds. This afternoon I saw one sitting on a fresh egg in a nest in the Messerschmidia.

Oct. 12-15, Sibylla, Taongi to Bikar, Bikar Atoll

Very sick for three days. In rack for most of that time.

R. Clapp
1964

Oct. 10-12 Taongi Atoll, Marshall Islands.

Perhaps 400 Blue-faced Boobies occur on the atoll. Pre-breeding displays were seen by two pair behind the camp when we landed on the atoll. Most of the birds appear paired and there are very few nests. Only several immatures and no large young were seen by me. In banding 42 birds on the 12th I noted no subadults. Birds are scattered along both edges of the atoll in more open areas and in openings in the denser cover along the beach.

Relatively small numbers of Brown Booby occur on Taongi. I estimate a population of 150 none of which appears to be breeding.

A quick check of Great Frigate breeding stage on Sibylla Island on the 10th and 11th showed many with nests in the Messerschmidia. Most frigate nests contained eggs. On a short tour of the southern end of Sibylla and the next islet to the south I found 23 nests of which 15 contained eggs, 6 contained large and medium young, and 2 contained small young. An estimated 4000-5000 frigates occur on this atoll.

On the morning of Oct. 11 a female frigate and a white-phase redfoot took turns sitting on a nest.

Several male frigates were seen which possessed the fully developed pouches of the adult male but possessed the white underparts of the immature as well.

An estimated 50 Bristle-thighed Curlew were seen on Taongi Atoll.

Huber said that he saw a single Sanderling to the south of Sibylla Islet as we reconnoitered in that direction on Oct. 11. The bird was not seen subsequently.

Wandering Tattler are as abundant on Taongi as any place I have ever seen them. It is common on the rocky reef on the SE of Sibylla and on the islets to the south. I estimate 150 birds for the atoll.

R. Clapp
1964

Oct. 10-12 Taongi Atoll, Marshall Islands

Golden Plover are common. An estimated 200 plus or minus present on the atoll.

Ruddy Turnstone are common. A flock of 28 seen. I estimate the population to be at least 250.

Fairy Tern : An estimated 400 birds present.

Common Noddy : Occurs in relatively small numbers. There are perhaps 200 individuals present

About 4 nests in all of Masked Booby were seen.

Kamome Islet possessed a population of Sooty Terns estimated at 6000-7000 by Huber and at 15000-20000 by Binion. They were in all stages from eggs to 3-4 week old young (Huber) Many were hatching and 1-2 days old and more birds were on eggs than not (Wislocki)

R. Lapp
1964

Oct. 16

Checked the boat in the channel for rats as I came onto Bikar Island. Collected one skeleton with fur and a grain sample. Grain was concentrated in the wheelhouse and in a bin aft. Most of it had been pretty well chewed over and probably ? no longer serves as a major food source. There are probably relatively few rats on the ship. I saw only one in a 10-15 minute search. It appeared too large to be exulans. I took a swing at it with my stick but it was coming from behind me (from above deck) and was gone before I could orient on it. Other possible food sources are sowbugs, small crabs and cockroaches. Taongi

One nestling Common Noddy was seen by Wislocki and a smaller number were seen north of the area I worked in by Binion

On Bikar for only about 2 hours camp being broken shortly after I arrived.

We then set out for Jaboerukku. En route we stopped and looked over a small sand island (Jabiru?) 1 Sanderling was seen, 1 roosting Crested Tern, a Reef Heron, Several Black-naped Tern, 25 Ruddy Turnstone, 5 Wandering Tattler, and 1 Bristle-thighed Curlew.

R. Clapp
1964

Oct. 17

Bikar Atoll

Spent the morning banding Red-tailed Tropic-birds on Arumenii and explored the inner part of the forest. Both rats (*exulans*) and hermit crabs (*Coenobitus perlitus* ?)(sp.?) are found on the heavy damp litter floor but the hermit crab populations of both Taongi Atoll and Bikar Atoll are much more scanty than they are in the Phoenix Islands.

Ken and George spent the morning banding Sooty Tern chicks while Binion collected insects and Lehner pressed plants for the ever-observant eye of the cameraman. Earlier in the day I had my chance to do a bit part for the camera and I did a short (but I trust well acted) rendition of "Banding the Red-tailed Tropicbird" in color yet.

In the afternoon after returning to camp for a snack at twelve I banded for a short time on Jaboerruku (Tropic-birds), returning thence to camp to prepare specimens. (Two Blue-gray Noddy (which I collected with the aid of a stick this morning), a Wedgetail, and a young Crested Tern collected by Binion this morning.

Later in the afternoon we relaxed somewhat and several of the party (Lehner, Amerson, and Huber) went skin diving.

Huber collected a live tiger cowry from the reef between Arumenii and Jaboerruku.

In the evening banded Masked Booby, Brown Booby and Sooty Tern chicks.

R. Clapp
1964

Oct. 18 Bikar Atoll, Marshall Islands

Spent the morning banding 100 Sooty Tern chicks on an islet NW but adjacent to Jaboerukku Islet. Made but slow progress since from 50-60 % of the birds were banded. I think a reasonable estimate of the number of Sooty Tern young would be between 2300 and 2500, which presupposes an adult population of about 5000 birds. This is the only place on the atoll where the species breeds. I saw a rat in the colony but they appear scarce compared with the nearby islands. The chicks are predominantly small, some very small while a very few have their wings more completely developed. None however are able to fly. Ticks are common in the area under stones.

R. Clapp
1964

Oct. 18 Jaboerukku-Arumeni Islands, Bikar Atoll

In the afternoon walked north on Jaboerukku and thence over to the Sooty Tern colony to have a look at the Crested Tern nests in their midst.

Near the center of the Sooty colony is a small colony of Crested Tern. Originally there were 20 eggs and 2 chicks but the 2 latter died and 2 rotten eggs were removed by Amerson. Today there are 14 nests encompassed in a very small area. The 14 nests are in an area, which, if boxed in by a rectangle would encompass 20 square feet. Subtracting about 2 square feet from the total would be justified as a certain amount of this area is not utilized by the birds. (The nesting area is more nearly oval.) This gives a nesting density of about 1 bird/2 sq. ft. or 50 nests/100 square feet.

I then measured the distances between eggs and their nearest adjacent neighbor to the half inch. I got : 10, 10, 12, 12, 10.5, 11, 11, 11.5, 12, 11, 9.5, and 9.5 inches

The nest itself is nothing more than a slight scooped depression in the coarse rubble coral and sand. Such a depression is about 6 inches in diameter and about .5 to 1.5 inches deep.

One egg centrally located was 12, 10, and 10 inches from its nearest neighbors. This would make the mean radius of the territory about 5.5 inches. This would give the bird a territory of less than a square foot.

R. Clapp
1964

Oct. 16-19 - Jaboerukku and Arumeni Islands, Bikar

Population Estimates

Species	Clapp	Ann.	Ams.	Huber
Great Frigate	- 300	800	500	2000-25000
R.F. Booby	- 500	1000-2000	500	3000-35000
B.F. Booby	- 250	250	300	400-500
Brown Booby	- 125	200	200	300-400
B.T. Curlew	- 5	8	5	5
W. Tattler	- 10	2	3	-----
R. Turnstone	- 45	40	20	100-150
Golden Plover	- 25	15	10	5
Sooty Tern	- 5000	7500	5000	-----
Fairy Tern	- 200	180	50	2000
Wedgetail	- 4	---	---	-----
Hawaiian Noddy	- 40	50	25	150-200
Common Noddy	- 2-3	2	2	30-60
Crested Tern	- 50	50	50	---
Reef Heron	- 1	1	---	---
B.G. Noddy	- 15	20	10	20
W.T. Tropicbird	- 10	20	30-40	40-50
R.T. Tropicbird	- 100	40	50-100	50-75
B. Naped Tern	- 20	10	10	15

Revised Estimates

Great Frigate - 750 - nesting in small numbers,
young seen.

Redfooted Booby - 900 - (?)

Blue-faced Booby - 250 - mostly eggs and prebreeding

Brown Booby - 200 - One old nest, not nesting.

B.T. Curlew - 5

Wandering Tattler - 3-5

Ruddy Turnstone - 45

Golden Plover - 10-20

Sooty Tern - 5000 - perhaps 2500 nestlings.

Fairy Tern - 200 - nesting

Wedgetail - 4 - 2 burrows, 2 well grown young

Hawaiian Noddy - 40 - not less than ten active nests
with eggs and young.

R. Clapp
1964

Oct. 16-19 - Jaboerukku and Arumeni Islands, Bikar A.

Crested Tern - 50 - some 20 eggs.
Common Noddy - 2-3 - no evidence of nesting.
Reef Heron - 1 -
Blue-gray Noddy - 15 - No nests found.
Wh. T. Tropic Bird - 25 - Some on nests with eggs.
Red. T. Tropic Bird - 100. - Not less than 25 nests
mostly with eggs or small young.
Black-naped Tern - 20 -

R. Clapp
1964

Oct. 19 Taka Atoll Population Estimates

	Clapp	Huber	Amers.	Amm.	Wis.	Leh.
S. Tern	50,000	30,000- 50,000	75,000 100,000	35000	65000	50000
G. Plover	10	10	25	10	20	40
R. Turnst.	200	150	200	75	100	200
W. Tattler	5	6	---	20	10	2
B. T. Curlew	1	---	10-15	2	4	3
R. T. T. B.	---	---	---	---	---	5 ?
H. Noddy	125	---	200	50	---	400
C. Noddy	30	20	50-75	---	---	2000
B. Booby	3	0	1	5	5	2
Cr. Tern	10	20	25	50	25	8
B. N. Tern	5	3	10	5	---	12
R. Heron	1	---	---	---	---	---

Revised Estimates

Golden Plover	- 10-20
Ruddy Turnstone	- 150-200
Wandering Tattler	- 5-6
B. T. Curlew	- 3-4
R. T. Tropicbird	- 0
H. Noddy	- 75-100
Common Noddy	- 25-50
Fairy Tern	- 500
Sooty Tern	- 50,000- 60,000
Brown Booby	- 2-3
Crested Tern	- 30 (count Ams.)
Bl.-naped Tern	- 5-10
Reef Heron	- 1

R. Clapp
1964

Oct. 20

Huber collected a Golden Plover in apparently full breeding colors or close to it.

On Bokin I collected a series of Hermit crabs from a large driftwood log. Many more sorts of shells were utilized than is generally the case in the Phoenix Islands, due in part perhaps to the relative paucity of Turbo shells in this area although small numbers do occur. A nereis and a Harp shell were used among others.

The dead turtle found on the lagoon beach of Bokin had the braincase of the skull literally filled with small hermit crabs and many more were gnawing at the fleshy parts of the skull and body. Hopefully the turtle skull can be collected tomorrow.

R. Clapp
1964

Oct. 23-24 - Jemo Island, Jemo Atoll

(Parenthetically I might note, for those who find my journal too telegraphic, we landed on the afternoon of the 23 and departed on the morning of the 24th.)

At the crest of the aforementioned hill were several decrepit frame buildings, none of which appeared to be clean enough or safe enough to use as a camp. Instead, we spread a tarpaulin over the remnants of a shed and used this for shelter.

At the base of the "hill" before the soil became moist and thick the area was quite sandy. Here there were many turtle diggings several of which appeared quite fresh. Later that evening, after dark, as we circled the island, a single turtle was observed on the southern end of the island.

Surveys were run around the island both in the afternoon and after dark, the latter in the certainly to be dashed hopes of banding birds.

In the afternoon saw several Fairy Tern nests. All nests that I saw contained only eggs.

The southern and eastern (Windward) sides of the island were covered with a dense growth of *Scaevola*, easily as thick as it is on Kure. Fortunately, there was a trail cut through it.

Very few types of shells were utilized by Hermit crabs on this island. I only noted about 5 species of shell in use. By far the most frequently used shell, (unlike other atolls visited) was some species of *Turbo*.

I saw several Hawaiian Noddy nests but their contents were not noted due to their excessive height.

R. Clapp
1964

Oct. 23-24 - Jemo Island, Jemo Atoll

	Population Estimates					
	RBC	PL	K.A.	A.B.A.	LHH	GW
F. Tern	150	400	2000-3000	1000	400	Abund.
H. Noddy	250	70	500-700	75-100	---	---
R.F. Booby	1500	150	1000	500	1000	Com-Abund.
C. Noddy	----	25	100	25-50	---	20
B.T. Curlew	1	2	1-2	---	1	1
W. Tattler	8	5	0	---	1	10
R. Turnst.	60	50	20	---	40	70
G. Plover	60	50	20	---	16	45-50
Gr. Frigate	2	10	25	15-25	2	---
B. Booby	3	3	2	2	2	---
R. Heron	---	---	---	1	---	---

Revised Estimates

Fairy Tern - 500-750
Hawaiian Noddy - 150-250
Redfooted Booby - 750-1000
Common Noddy - 25-50
B.T. Curlew - 1-2
Wandering Tattler - 5-8 Gr. Frigate - 10-20
Ruddy Turnstone - 60 B. Booby - 2-3
Golden Plover - 50 Reef Heron - 1

This island had very high vegetation with perhaps 200 Redfoot nests, upon some of which birds were incubating. All three phases of redfoots were seen but we were able to obtain no good estimates of their proportions.

Mosquitoes were abundant and plagued us throughout the night. Binion and the others moved down to the beach while I hid beneath my Off impregnated sheet trying to read Carthy on Animal Navigation. I nearly got carried away by the rats which were very numerous. (They were very abundant in the moist litter at the base of the root systems of the large trees)

The "crown" of the island is almost a hill, certainly much higher than on any other atoll we have so far visited. Perhaps 20-25 ft. in height. This island or atoll unlike others visited is but a single lump of land. No lagoon.

R. Clapp
1964

Oct. 24. Erikub Atoll, Marshall Islands

Population Estimates for Loj Island					
Species	RBC	KEA	ABA	LNH	Revised
R. Turnstone	35	50	20-30	10	25-35
W. Tattler	1-2	--	-----	1	1-2
G. Plover	35	25	20-30	20	20-30
B. T. Curlew	20-25	10	4-5	10	15-20
Fairy Tern	500-750	75	200	300	300-500
H. Noddy	25	----	----	50	25-50
C. Noddy	5	----	----	20	5-10
Reef Heron Frigate	1	----	----	----	1

The reef heron seen was a dark phase bird. Several old Hawaiian Noddy nests were seen. I saw no Fairy Tern nests but it seems in view of their status on other islands visited on this trip, very likely that they are breeding. Several turtle excavations were seen along the beach. Mosquitoes were abundant

Hermit crabs were few in number. The butterfly (Hypolimnas bolina ?) occurred on this island.

Also seen Crested Tern : 1
 female Great Frigate: 1
 Brown Booby : 1

R. Clapp
1964

Oct. 25 Erikub Atoll, Marshall Islands

Population Estimates for Enego Island

Species	RBC	GW	PL	LNH	KEA	Revised
B.T. Curlew	50	45	20	40	30	40-50
G. Plover	75	60-70	70	30	--	60-70
R. Turnstone	75	75	75	30	--	75
B.N. Tern	1	1	--	2	--	2
Fairy Tern	1000	400	300-400	300	200	400-500
Gr. Frigate	1	---	--	--	11	1
Reef Heron	1	---	--	1	--	1
C. Noddy	100	800	80-100	50	50	100
H. Noddy	500	250	150	150	75	150-250
W.T.T.B.	4	4	--	--	--	4

The White-tailed Tropicbirds were seen flying over the island and not on the island proper. Not less than 2 Hawaiian Noddies were seen on nest and a single Fairy Tern egg opened for examination proved to be almost ready to hatch.

Population Estimates for Aradojaren Island

Species	RBC	GW	PL	LNH	KEA	ABA	Revised
Cr. Tern	3	--	--	3	---	---	3
W. Tattler	3	3	3	3	---	---	3
R. Turnstone	20	5-6	5	10	---	---	10-20
G. Plover	20	12-13	15	25	---	---	15-20
Fairy Tern	200	200	80	300	175	750	300-400
Hawa. Noddy	75-100	25	100	150	50	200	100-200
W.T.T.B.	1	--	---	2	---	---	1
B.T. Curlew	---	--	---	1	---	---	1
Gr. Frigate	---	--	---	--	---	1	1
Com. Noddy	---	--	---	50	---	25	?25-50?

Fairy Terns were probably nesting and both old nests and young of the Hawaiian Noddy.

A few moments were spent observing Fairy Tern behaviour. When startled by a gun in the distance these birds responded by with flight intention movements (wing-raising) and quiet "wheets" which may indicate that this "wheet" is a low intensity alarm or anxiety note. To a shouted monosyllable they responded by elevating the head from the shoulders and looking around.

R. Clapp
1964

Oct. 26 - Erikub Atoll, Marshall Islands

Population Estimates for Jabonwar Island

<u>Species</u>	<u>RBC</u>	<u>PL</u>	<u>KEA</u>	<u>Revised</u>
Fairy Tern	250	250-500	250	250
Common Noddy	5	8	2	5-10
B.T. Curlew	1	1	1	1
Ruddy Turnstone	10-12	-	8	10-12
Golden Plover	1	-	1	1
Crested Tern	2	2	2	2
Hawaian Noddy	50-75	200-300	120	100-150
Black naped Tern	2	2	2	2

One Fairy tern egg was seen and others were probably present. Two Hawaiian Noddies were seen on nests and other old nests were seen. In all perhaps 30 nests were seen. Some of these contained large young. Most in fact appeared to possess either birds on eggs ? or large young.

Population Estimates for Aradojairik Island

<u>Species</u>	<u>Huber</u>	<u>Wislocki</u>	<u>Amerson</u>
Great Frigate	100	100	50 plus
Brown Booby	200	60-80	150
Fairy Tern	200	200-250	100-150
Wandering Tattler	1	1	----
Ruddy Turnstone	10	7	----
Golden Plover	----	14	----
B.T. Curlew	----	----	----
Crested Tern	2	----	2
Black-naped Tern	40	----	12
Hawaiian Noddy	----	15	20-40
Common Noddy	***	----	----
Reef Heron	1	1	1

The Reef Heron was a dark phase bird.

R. Clapp
1964

Oct. 26 - Erikub Atoll, Marshall Islands

Aradojairik Island : Fairy Terns were observed on eggs on this island. On a rocky part of the beach near the cover of the forest were a few nests of Black-naped Tern. Two nests with eggs were found after a somewhat difficult search and two chicks were collected. The preferred nest site of this species (if that egg on Taka happens to belong to this species) appears to be coarse rocky rubble much rougher in nature than the nesting sites of most terns with which I am acquainted.

Brown Boobies were nesting in numbers under the overhanging trees and down to the rocky shores of the island. One nest was peculiar in that it was completely composed of small sticks of driftwood. Both young and eggs were present but the young were generally young young. I saw no birds which I could consider even half way grown. Huber estimated 40 nests, and Binion estimated 50-75 nests. Amerson notes that the nests were mostly with eggs, (perhaps 1/2) and chicks (1/4) and prelaying.

Population Estimates for Guro Island

<u>Species</u>	<u>RBC</u>	<u>PL</u>	<u>KEA</u>	<u>Revised</u>
B.T. Curlew	3	3	2	3
Wandering Tattler	3	3	2	3
Golden Plover	4	--	--	3-4
Ruddy Turnstone	5	4	2	4-5
Fairy Tern	30-35	75	60	30-35
Hawaiian Noddy	45-50	100	40	45-50
Reef Heron	1	1	1	1
Black-naped Tern	2	2	2	2
Brown Booby	1	seen flying by		

The Reef Heron was mottled phase.

R. Clapp
1964

Oct. 26 - Erikub Atoll, Marshall Islands

Guro Island : One Fairy Tern nest was found 62 inches up in a crotch of Scaevola. The Black-naped Tern seen acted very disturbed by our presence. It and its mate flew about us very much as if it had eggs. The area was one of rocky rubble above the high tide line and looked suitable for this bird, but even with careful inspection by Ken and myself we were unable to locate a nest. Some 10 Hawaiian Noddy nests were seen.

Population Estimates for Jaldoni Island

	RBC		
Bristle thighed Curlew	6-8	6	6
Wandering Tattler	5-6	3	2
Golden Plover	6-8	5	8
Ruddy Turnstone	3-4	3	4
Fairy Tern	35-40	100-120	80
Hawaiian Noddy	15-20	60	20
Common Noddy	---	---	---
Reef Heron		1 mottled phase	
Brown Booby		1 flying by island.	

Two Fairy Tern nests were seen and no Hawaiian Noddy nests were observed. 2 lizards seen.

Population Estimates for Bogolla Island

<u>Species</u>	<u>Amerson</u>	<u>Huber</u>	<u>Wislocki</u>
Golden Plover	-----	5	U
Ruddy Turnstone	-----	10	S
B.T. Curlew	-----	-----	E
Wandering Tattler	-----	2	L
Fairy Tern	150	50-100	E
Hawaiian Noddy	50-75	10	S
Great Frigate	1	In air.	S

Both Fairy Tern and Hawaiian Noddy were breeding on this island. One Fairy Tern had a 1-2 week old chick.

R. Clapp
1964

Oct. 26 - Erikub Atoll, Marshall Islands

Population Estimates for Jogan Island

<u>Species</u>	<u>Amerson</u>	<u>Huber</u>	<u>Wislocki</u>
Golden Plover	-----	5	U
Ruddy Turnstone	-----	10	S
B.T. Curlew	-----	10** 3	E
Wandering Tattler	-----	2	L
Fairy Tern	150	50-100	E
Hawaiian Noddy	50-75	10	S
Reef Heron	1	(dark phase)	S

Both Fairy Tern and Hawaiian Noddy were breeding.

Population Estimates for Bogwaido Island

<u>Species</u>	<u>Amerson</u>	<u>Huber</u>	<u>Wislocki</u>
Golden Plover	-----	5	U
Ruddy Turnstone	-----	10	S
B.T. Curlew	-----	-----	E
Wandering Tattler	-----	2	L
Fairy Tern	150	50-100	E
Hawaiian Noddy	50-75	10	S
Reef Heron	1	(mottled)	S

Both Fairy Tern and Hawaiian Noddy were breeding. According to my informants most Hawaiian Noddy nests on Bogolla, Jogan, and Bogwaido were old.

Population Estimates for Bokku Island

<u>Species</u>	<u>Amerson</u>	<u>Huber</u>	<u>Wislocki</u>
Golden Plover	-----	-----	U
Ruddy Turnstone	-----	-----	S
B.T. Curlew	-----	-----	E
Wandering Tattler	1	2	L
Black-naped Tern	4	4	E
			S
			S

R. Clapp
1964

Oct. 27 - Erikub Atoll, Marshall Islands

Population Estimates for Bogenoa Island

<u>Species</u>	<u>Clapp</u>	<u>Lehner</u>	<u>Amerman</u>
Fairy Tern	2000	1000	3000
Hawaiian Noddy	300-400	130	400-500
Common Noddy	75-150	30	-----
Wandering Tattler	15-20	8	-----
B.T. Curlew	10	8	-----
Sanderling	1	1	-----
Black-naped Tern	3	3	-----
Golden Plover	10-15	8-10	15-3
Ruddy Turnstone	10-15	15	-----
Reef Heron	1	1	(dark phase)
Brown Booby	1	1	-----

Island had Coconut, pandanus, Messerschmidia
Scaevola on it among others. (Triumfettia as well)
Ghost crabs were seen running along the beach.

Was the following island Boj??? or what???

Population Estimates for Erikub Island

<u>Species</u>	<u>Amerson</u>	<u>Huber</u>	<u>Wislocki</u>
Fairy Tern	200	50	-----
Hawaiian Noddy	----	20	-----
Common Noddy	----	30	-----
Golden Plover	----	5	40
Wandering Tattler	----	25	25
B.T. Curlew	----	3	12
Ruddy Turnstone	----	20	60-70
Reef Heron	----	4	6
R.T. Tropic bird	1	1	1
Great Frigate	1	1	1
Red-footed Booby	1 - at sea.		
Goose sp.	1	1	1

R. Clapp
1964

Nov. 1 - Kwadjalein Atoll.

Spent the morning skinning birds with Larry in the lab. Both Sooty Terns skinned were very fat. Huber collected more fish for the turtles.

In the afternoon we all (with the exception of Ken Amerman and George Wislocki) went over to Carlson Island to poison fish. While the rest went out to the edge of the reef with the rubber raft, I scouted the lagoon shore of the island while the entomologist, Dave Perkins collected insects.

I collected a fair series of hermit crabs. There seemed to be three varieties (or age groups) commonly found) One, rather, large, hairy, and red appears to be the same form that is found in the Phoenix Islands. Another, smaller is red and white but may be a young form of the red hermit crab. Another small form appeared to be gray or brown all over. Three examples of a fourth variety were seen. These are generally larger than the red hermit crabs, are a dull purplish in color, and are considerably less hairy. In addition their largest claw seems more well developed than is true of the red form. This species is considerably more active than the red form and it may be for this reason that their shells seem to be in poorer condition. When handled, unlike the red form, they struggle actively and vigorously to get away and retreat but seldom into their shells (all of which appeared to be Turbo) In addition, they seem to prefer heavier cover, all those examples seen having been seen either under shady coconuts, or in the dense foliage of the beach morning glory.

As a whole Turbo shells seem relatively scarce around this island. Nereis ? or related shells are frequently utilized, and augurs or mitres scombrids ? sp ? and numerous other forms are utilized as well.

While traversing the interior of the island I saw two rats, but they were not clearly enough seen so that I could be sure of the specific identification. Probably exulans
One was missing a tail.

R. Clapp - 1964

Nov. 1. Kwadjalein Atoll.

I took two pictures of the large purple form of hermit crab and one of an ant gallery in a Messerschmidia tree. These latter ants were large and reddish and according to the entomologist are a large carpenter ant, Camponotus. The entomologist also noted that his traps were turning up good numbers of mosquitoes and crane flies.

On the way back to the Shearwater, 3 Black naped Terns were seen feeding low over the lagoon waters.

In the evening I spent much of my time working over the fishes and identifying as many as I could.

List of Fishes Identified

- Muraenidae - Echidna zebra
Ophidhidae * Leiuranus semicinctus
Chatodontinae -
Chaetodon ehippium
Chaetodon lunula
Chaetodon unimaculatus
Acanthuridae -
Naso lituratus
Zebrasoma veliferum
Acanthurus aliala
Acanthurus triostegus
Serranidae - Epinephelus spilotoceps
Epinephelus fuscoguttatus
Epinephelus merra
Cephalopholis argus
Holocentridae - Holocentrus diadema
Holocentrus sp.
Myripristis sp.
Zanclidae - Zanclus cornutus

Other fish collected included a porcupine fish, 2 species of triggerfish, 5 plus species of wrasse, 2 species of trunkfish, 1 stonefish, and some 20 plus other unidentified species.

R.Clapp - 1964

Nov. 1 Kwajalein Atoll

George Wislocki and Ken Amerman spent the day cruising the eastern side of the lagoon from Kwajalein to Bigej, with stops at Ebeye and Bigej.

Extract from Amerman's Notes

" We saw nothing notable. There were many Hawaiian Noddies in the lagoon and fewer than 6 Fairy Terns outside the reef. A few plovers were seen in the antennae field of the Loran station on Ebeye and 4 plovers and 6 tattlers on the lagoon shore of Bigej.

Nov. 2, 1964 Kwajalein Island, Kwajalein Atoll

Went over to the runway with Ken Amerman today to collect birds. Got some 15, many of which probably represent new records for Kwajalein. At least 6 ducks were seen. One (which was not shot) was surely a Shoveller. Another Lehner is sure is a female pintail, a third is possibly a tufted duck. Two Sanderling were seen one of which was collected. Other birds collected included 4 Sharp-tailed Sandpiper and another small sandpiper which I did not recognize. This bird and 2 sharp tails were taken with a single shot from a group of five small sandpipers! One whimbrel was collected and at least 7 others were seen. There were probably a total of some 200-300 Ruddy Turnstone 200 Golden Plover, about 25 Sharp-tailed Sandpiper, and 15-20 Wandering Tattler present along the airstrip. Strangely enough no Bristle-thighed Curlew were seen.

Both the area near the terminal which is grassy and has great numbers of birds feeding on it and the airstrip were very well covered with birds. There is a very long strip (perhaps as much as a quarter of a mile) of fresh water down the center of the airfield between the runway proper and the taxi strip. Birds are very plentiful but shooting is difficult as ammunition bunkers, golf courses, buildings, and a weather station are all in the background.

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Nov. 2 Kwajalein Island, Kwadjalein Atoll.

A fourth duck was shot but as only its wing was broken the bird calmly crossed the runway (which was forbidden territory to us as Security had warned us against this) and headed for the weather station. After leaving the airfield at three P.M. Ken and I took a taxi to the weather station in an attempt to run down this bird but were frustrated when we found that the bird had waddled back across the runway and had reestablished itself in the central waterway.

The others returned from Orebebbu where they had been poisoning fish as we returned to the boat. Later in the evening, I checked over the fish superficially. On the whole the species representation was similar to that found on Enubuj but a number of other forms were collected for the first time, including a very large Cornetfish.

Fish Collected on Orebebbu

- Labridae - Macropharyngodon meleagris
Labroides dimidiatus
Halichoeres hortulanus
Serranidae - Epinephelus fario (?) (Three blotches along the base of the dorsal fin, no black stripe near the maxillary) (A possible first record for the Marshalls ??)
Chaetodontinae - Chaetodon auriga
Fistulariidae * Fistularia petimba (Cornetfish)

Others which I reidentified which we had collected before included Chaetodon unimaculatus, Acanthurus triostegus, Naso lituratus, Epinephelus merra, and Ctenochaetus striatus. Two species of Triggerfish were collected, one the same as that collected on Enubuj.

R. Clapp - 1964

Nov. 3. Kwajalein Atoll.

Went up to Roi-Namur at the other end of Kwadjalein today but could do not collecting as their Security was nervous even though we told them we had been collecting on Kwajalein. Prepared for another visit if we do not sail tomorrow. Wasted day for me.

Huber, Lehner, and Amerman collected some more goodies from the Kwajalein Airstrip while we were gone. A snipe, several ducks including two Shoveller, and several sharp-tails as well as a Black-Bellied Plover and a Sanderling were collected.

Nov. 4 Roi - Namur Islands

Returned to Roi-Namur via C-47 again and collected from our arrival at about 1:00 until 4:00. Shot the puzzling Godwit, (which is apparently a Marbled Godwit) and collected a series of the commoner shorebirds. (1 Golden Plover, 6 Wandering Tattler, and 12 Ruddy Turnstones.) The latter figure is accounted for by a flock shot which brought down seven birds. The birds were very jumpy and difficult to get close to. Two Sanderling and some 5-8 Whimbrel were seen as well but I never got within range of them. Very few other birds were seen. Several Reef Heron were seen and three birds were seen further out which may have been Crested Terns.

Nov. 5. Kwajalein Atoll

Spent most of the day skinning. Still waiting for the second mate.

Nov. 6 Kwajalein Atoll

Ditto. (l.e. See Nov. 5)

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Nov. 6. Kwadjalein Is., Kwadjalein Atoll.

Rained steadily all morning. I skinned birds in the morning while the others sacked out or read. Only got two finished but both should be good skins. The Sharp-tailed Sandpiper was excessively fat as was the one I did the other day.

At about noon I went into town to check for a diving mask with Larry. On our return we watched a Golden Plover wllaking around the docks. When scratching its head, this individual scratched over the wing.

R. Clapp - 1964

Nov. 7 - Kwadjalein Island, Kwadjalein Atoll

Spent the day skinning birds. 2nd mate to arrive the afternoon of the 9th.

Nov. 8. Kwadjalein Atoll, Marshall Islands

Left the ship at 9:00 Am. to poison fish at North Loi Island. Enroute to this area two Hawaiian Noddy were seen that repeatedly alighted in the water. Huber missed several shots, as did Wislocki, but Binion finally scored two for one. These birds are somewhat notable in that the foot coloration as a whole is lighter than in Hawaiian Noddies that I have noted elsewhere. Where birds from other areas have very dark brown feet, the Hawaiian Noddies collected today had a much lighter foot coloration that was distinctly orangish in cast, almost but not quite as pronounced as in the Ruddy Turnstone.

Another feeding flock of 7 Hawaiian Noddies was also seen enroute to the poisoning area. Large fish (which appeared to have the auxillary dorsal fin and silvery color which I associate with the mackerel group) were chasing small fish to the surface of the water. The attendant Hawaiian Noddies then fluttered at the surface of the water, frequently alighting to pick up these fish.

The island itself was at present deserted of inhabitants but a single house with many scrawny chickens and graded sizes of pigs indicated that this isle supports at least one family. Hermit crabs were less abundant than they usually are but the small skinks with blue tails and black dorsal stripes were more abundant here (or at least appeared so) than they were on any other island so far this trip. They were especially abundant in the coconut debris and other vegetation rooted about in by the pigs.

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Nov. 8 - Kwajalein Atoll, Marshall Islands.

I then collected birds while the rest collected fish and Dave Perkins hunted for insects. Got 3 Common Noddies and 2 Hawaiian Noddies from a mixed flock roosting on a sand spit. 2 Crested Terns were also roosting in this group, an adult and an immature, but I did not see them until they rose in flight. Both were shot over the shallow waters of the lagoon but were both too far out for wading. By the time I returned with Larry, his snorkel, his fins, et al the birds had disappeared, possibly to sharks as we saw two black tipped sharks in the channel as we approached the spot where the terns had been shot.

On the island overall, I should say there were about 30 Fairy Tern (1 collected) 20 Common Noddy, and a single white Reef Heron. The outer edge of the island had a wide reef (some 100 yds) but shorebirds were not numerous. About 10 Golden Plover, 25 Ruddy Turnstone, and 5-10 Wandering Tattler were all that were seen.

Upon our return to the ship I went to the dentist and had three holes in my teeth temporarily filled.

(In the afternoon on the beach at North Loi I picked up a number of Strombs with red borders which appeared to be similar if not identical to those which I collected in the southern Phoenix Islands. This is the first island since there, upon which any numbers of this form have been found.

Nov. 9 - Kwajalein Island, Kwajalein Atoll.

Went into town in morning and did laundry. Skinned 5 Golden Plovers in the afternoon that Larry had shot this morning. He also got two ducks. The second mate arrived this afternoon and we were underway for Jaluit at 4:00.

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Nov. 10 - At Sea and Jaluit Atoll.

Skinned birds in the morning and midafternoon. (Common Noddy, Hawaiian Noddy, Sandpiper sp., etc.) Sighted Jaluit at about 1100 but it was not until 1500 that we completed our entrance into the lagoon and dropped the hook.

While Binion conferred with the town scribe, the rest of us visited two islands (Enybor and

Lehner, Amerman, Perkins and I went to Enybor, Huber and Wislocki to

Population Estimates for Enybor

Wandering Tattler	- 7-8	Scattered individuals
Golden Plover	- 5-7	" "
Ruddy Turnstone	- 10	One small flock, ocean side
Curlew sp?.	- 1	Reported by Amerman
Reef Heron	- 5-6	2 dark, 1 white, 3 mottled.
Crested Tern	- 2	
Sterna sp.	- 1-2	1 collected
Black-naped Tern	- 15	roosting on sand spit
Fairy tern	- 10	1 collected
Common Noddy	- 20	3 collected

Of particular interest was the fact that no Hawaiian Noddy were seen. The cover of the island included coconut, Pandanus, Messerschmidia and seemed suitable for this species but not a single individual was observed. The Common Noddies were seen roosting in palms and three were collected in flight. A much smaller number of Fairy Terns was seen. (Only 3 seen and heard by me)

There were many dark greenish lizards, about 5 inches long, which were primarily found on the coconut trees. One was collected.

On this island, as seems to be generally the case on these Pacific atolls, Pemphis occurred primarily on the ocean side of the island. Brush was very dense in the interior and quite difficult to work through. In the center of the island were several holes containing fresh or brackish water. (They were apparently old bomb craters) However, the vegetation around the edge of these holes was so great that it seems highly improbable if a duck could use them at any time.

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Nov. 10 At Sea and Jaluit Atoll

Population Estimates for Kabbenbock Island

<u>Species</u>	<u>Wislocki est.</u>	<u>Huber est.</u>
Fairy Tern	10	4
Black-naped Tern	7	5
Crested Tern	3	2
Reef Heron	6	4
Whimbrel	1	1
Wandering Tattler	5	16-18
Golden Plover	13	6
Ruddy Turnstone	40	35
Common Noddy	4	8
Hawaiian Noddy	20-25	2

Huber states that his estimates are based on counts. The discrepancy in Hawaiian Noddy indicates someone's error. Since No Hawaiian Noddy were seen on the adjacent island, Erybor, by Amerman, Lehner, and myself, I would tend to favor the lower figure.

Huber and Wislocki collected a dark phase Reef Heron and a Crested Tern. Huber also notes that there were chickens being kept by the single native family inhabiting the island.

The only other "real" discrepancy in the above estimates are the two figures on Wandering Tattler. I have no way of knowing which might be the more accurate.

Wislocki notes that pigs were being kept on this island also. A small species of lizard (not the large form noted on Erybor) was seen and apparently was the "Blue-tailed Skink", (the form with the dark dorsal striping.) No nests were seen by either Wislocki or Huber.

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Nov. 11 - Jaluit Atoll.

Up at 700 and got collecting gear together for a trip to the SE end of Jaluit Island and to Elizabeth Is. Lehner went with me. The rest (excepting Perkins) went north to poison fish and check (Lojeron) for birds as native informants state that this island has the most birds. They took a tent with them and will stay overnight if there is any prospect of banding. Took a picture of a native outrigger sailboat this morning with Erybor (to the left) and Kogganbeck (to the right) in the background.

We left the boat at 9:00 but it took us until 10:30 to reach Jaluit. We were introduced to the head man who kindly guided us around the island. The fresh water pool was small and only a Golden Plover and some other species of shorebird resembling this bird but larger and with a grayer head were the only birds to be seen. This latter individual was later shot at by Phil, but unfortunately was missed.

Continuing onward, northward along the islet, we encountered much flat, sandy and muddy area overgrown with Pemphis forest, coconut, and several other species which I did not recognize. This area is inundated at high tide but at the time we were there, the tide was out and there was but little standing water. Birds were relatively few and infrequent in this area (and over the island as a whole.) The density of birds (all species) was lower than on Erybor. A Curlew (probably Bristle-thighed - Lehner) or two was seen, but these birds were very jumpy and attempts to collect were fruitless. Small numbers of Golden Plover, Ruddy Turnstone, and Wandering Tattler were seen, while overhead flew small numbers of Fairy Terns, and slightly larger numbers of Common Tern. A single Crested Tern was seen perched on a branch on the reef (lagoon) side, and several Reef Herons were seen. One Common Noddy, one Fairy Tern, and Two Golden Plover were collected.

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Nov. 11 - Jaluit Atoll

Upon our return to the center of the village we were greeted by the Womens Club (a local version of the PTA ?) and made honorary members (somewhat informally) Leis were garlanded around our necks and both Phil and I were given a fan and an excellent specimen of what I believe is a map cowry. We were invited to lunch and after waiting some twenty minutes, the women's club arrived wearing bright green dresses which I believe are an emblem of the club. They had breadfruit, three boiled chickens, some sort of dumpling thing and coconut milk. (I hope to never drink another drop of coconut milk, sociality or no sociality). After finishing our simple repast, we were garlanded again and each women of the club contributed one or several large tiger cowries, (and another I do not know) to our store of goods. We got* some 15 in all and I must admit it felt a bit like Halloween in reverse. Finally after, Phil and Dave, had exhausted their touristy impulses (Lehner now has the world's largest collection of color slides of Marshallese with some idiot with flowers in his hair among them) we left the island for Elizabeth. (Our guide was to return for the stack of green bananas we had been given.

Parenthetically for those who may be interested in animal behaviour, individual distances decrease in Marshallese social life with outlanders like us in the following scale (from closest to furthest.) Adult males, Adult married females with children, small children, adolescent males, and nubile maidens. Oh well.)

We finally got off the island at two and reached Elizabeth at three. The central lagoon proved to be a small stagnant area with much heavy leaved growth around the southern end and bordering right on the village. The headman of the village stated that four ducks had been shot recently and there on the lagoon was another. From here on the tale becomes tragic. Phil, who was shotgun today, crept along the bayou until he was close to the bird, and began to quack quietly to it. It apparently worked better than squaking for shortly he commented

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Jaluit Atoll - Nov. 11, 1964

that he was less than 20 feet from a New Zealand Cuckoo. Which as the bird flew then into the bush ahead of me it proved to be. I called Phil from duck hunting, and tried to show him where the bird was perched. Disgusted nodoubt with my tremors, he handed me the gun, I took aim, sighting carefully, and shot---- and missed. And the duck flew away. Some days are like this.

This idland if anything, had fewer birds than Jaluit. A few Fairy Terns, a few Common Noddies, small numbers of Golden Plover, Ruddy Turnstone, and Wandering Tattler were seen as well as a few Reef Heron.

We recircled through the area in which the New Zealand cuckoo had been seen but had not a bit of luck. (Perkins on the other hand got a beautiful Aesnaid on Jaluit, and his first aphis lion of the trip of Elizabeth.

So we returned to the ship, I prepared the birds with Phil's help, and Phil and Dave went to the luau on the beach while I finished up taking care of the birds.

While on Jaluit I got a number of Marshallese names for the local birds. These are as follows.

Golden Plover	--	Koloej
Fairy Tern	--	Mej Mejo
Common Noddy	--	Bejwak
Hawaiian Noddy	-	Jkar
Brown Booby	--	Kalo

This later term was taken when I discovered that a single immature Brown Booby was being kept as a pet by our guide. He had brought some 20 ? of them from ? but the others had died. This bird was raised from a nestling, and while his diet apparently is still largely supplied by his Marshallese keeper, is also capable of fishing for himself.

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Nov. 11, 1964 Jaluit Atoll

The island had relatively few coconut trees (3-4) and the sandy beaches supported a series of ghost crabs. There was much Pisonia and much Pemphis. Huber noted that Frigates roosted primarily in Pemphis while many of the Red-footed Booby were roosting in Pisonia. The Pemphis had a more northerly distribution on the island, while the Pisonia was found to the south.

Hawaiian Noddy nests were found in large numbers (estimate 500 Amerman) in both Pemphis and Pisonia.

Amerman notes that all Sooty Tern shot had brood pouches but there were no traces of eggs or nests. Most of the Sooties were found on the ground in under the edge of the forest.

Two well grown Crested Tern chicks were found and many of the nesting Fairy Terns had large chicks almost ready to fly. Only about four Common Noddy nests were found. Two of these were on palm fronds about 2-3 feet from the ground.

Nov. 12 - Jaluit Atoll and At Sea

Got up early in the morning and went over to Enybor with Binion, Ken, and Dave. The same flock of 15 Black-naped Terns was sitting on the same sand spit as it was the other day. Intermixed with these birds and roosting with them were about 30 Common Noddies. Binion did the shooting, while I took care of the specimens. 3 sumatrana, one adult and two immature, were obtained as well as a Common Noddy and a Hawaiian Noddy.

The immature Black-naped Terns were both in primary molt. Those feathers in the wing which had been already molted and regrown were much lighter in color than those immature feathers which they were replacing. The anterior portion and the anterior half of the posterior portion of the web were but a very faint, smoky gray which would appear in the field as white. The older, outer primaries, on the other hand were very dark gray to black in this area. Perhaps it might be possible to estimate age of young Black-naped Terns in the field by the amount of black showing in the wing in flight. These immature birds also varied from the adult plumage in that the feathers on the anterior, proximal part of the wing had a dark bar on them. In addition, I thought that there was a variation in gape color between young and old birds, with the younger birds having a distinctly more pinkish gape, while that of the adult tended to be salmon colored. However, the colors were too similar and the sample size too small for me to be sure of this.

We went then to the island, off which the ship is anchored and where the missionary, Father Donohue, holds court. We were feted by yet another women's club. This group wore a uniform consisting of a dress with a pattern of red and white squares. Leis, of course, were the order of the day and they gave us a number of woven items including mats, cigarette cases, and some purely decorative items.

When we returned to the ship Larry and I spent the rest of the day skinning while the others kept a largely profitless watch. Stopped skinning at six, watched Mary, Mary, and skinned until 2300.

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Nov. 13 Makin Atoll, Gilbert Islands

Skinned a Hawaiian Noddy in the morning while waiting to sight Makin. Makin was sighted about 10.

Two more of Huber's Green (?) Turtles hatched bringing the total that has hatched up to three. Weights of newly hatched turtles were 27-27-, and 28 gm.

We all started ashore for Butaritari at 1400 towing a native outrigger sailboat with the local officials aboard. We dropped Larry and George there and went across the lagoon to

Hawaiian Noddies were very abundant there, not less than 3000 birds, I should say. We also saw about 60 frigates, both greater and lesser, at dusk, a brown booby, one apparently white-phase adult red-footed booby, 6 reef herons, 2 gray, the rest white or mottled, about 10 ruddy turnstones, about 6-8 golden plover and about 4-6 wandering tattler. While Crested Terns were not seen over the island, at least ten of them were seen in a feeding flock with Hawaiian Noddies not far from the island. Their method of feeding was distinctly different from that of the noddies. The noddies would continually stoop low across the surface of the water, one spot or even alighting. While the Crested Terns fluttered at the water's surface occasionally, more often they would obtain their prey in short shallow dives, from above the substratum of feeding Hawaiian Noddy.

Perhaps 10-15 Fairy Tern were seen on the island. There were likely not less than 1000 occupied nests of Hawaiian Noddy. Binion counted 200 nests in a single tree, I counted over 60 in another. All 11 of the Hawaiian Noddy collected had brood patches.

One great frigate, 2 lesser frigate, 3 fairy tern, 11 Hawaiian Noddy, 1 Golden Plover, 3 reef heron, 4 crested tern, and one brown booby were collected.

As we returned to the ship after dark, we heard again and again a hissing sound which sounded like a leak.

However, the boat did not seem to be losing much air so we did not worry. However... today was Friday the 13th. At about a quarter of a mile from the ship there was a loud hiss and the entire front section of the rubber raft collapsed. Quickly removing the gear from the front compartment, Ken and I pulling on the tow rope to keep the sagging bow from going beneath the water. So we rode the last quarter mile like a duo of Poseidons (of modern vintage of course.

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Nov. 14 . Makin Atoll, Gilbert Islands.

Spent a rather dull day aboard ship skinning birds (8 Hawaiian Noddies) while the rest went out in two parties to collect birds.

Binion, Phil, and Ken went back to _____ and then on to _____. They returned at 4:30 with a large number of birds including a red-rumped ruddy turnstone. I spent the rest of the day halping lable birds and making molt notes on them. George and Larry returned from Butaritari later with a number of shorebirds but nothing especially unusual, although they note seeing a "stilt" of some kind and perhaps two species of godwits (perhaps some 60 of same.

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Nov. 14-15 Makin Atoll, Gilbert Islands

Heteroscelus incanum

<u>Number</u>	<u>Sex</u>	<u>P.I.</u>	<u>Primaries</u>	<u>Rectrices</u>
30290		7.5	1-8*9-10N (L) 1-6*7-10N (R)	No molt - old.
30308		7.3	1-6*7-8S*RN (R) 1-5*6D*7-8S*RN (L)	No molt
30309		7.5	1-6*8-8S*RN	No molt - old
30310		7.5	1-6*7-8S*RN	No molt - old
30311		8.3	1-8*9-10N (L) 1-7*8S*RN (R)	No molt - old
30312		7.0	1-5*6-8S*RN	R1, L1
30313		5.5	1-4*5-6S*RN	L1N, R2

Summary : Mean Primary Index: 7.2

Arenaria interpres :

<u>Number</u>	<u>Sex</u>	<u>P.I.</u>	<u>Primaries</u>	<u>Rectrices</u>
30301		5.0	1-4*5S*RN	No molt
30302		1.0	1S*RN	Tail in molt
30303	F	4.0	1-3*4S*RN	Tail in molt

Summary : Mean Primary Index : 3.3

Pluvialis dominica :

<u>Number</u>	<u>Sex</u>	<u>P.I.</u>	<u>Primaries</u>	<u>Rectrices</u>
30262	M			
30274				
30275				

Summary : Mean Primary Index

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Nov. 14-15 Makin Atoll, Gilbert Islands

Erolia acuminata

<u>Number</u>	<u>Sex.</u>	<u>P.I.</u>	<u>Primaries</u>	<u>Rectrices</u>
30305	M	0.0	Completed	Not molting
30306		0.0	Completed	Not molting
30307		7.0	1-6*7S*RN	R1

Numenius tahitiensis

<u>Number</u>	<u>Sex</u>	<u>P.I.</u>	<u>Primaries</u>	<u>Rectrices</u>
30314		6.5	1-5*6-7S*RN	No molt-Badly worn
30315		5.5	1-4*5-6S*RN	No molt-Badly worn

Limosa sp :

<u>Number</u>	<u>Sex</u>	<u>P.I.</u>	<u>Primaries</u>	<u>Rectrices</u>
30316	M	4.5	1-3*4-5S*RN	R1, L1 - rest old
30317	M	4.0	1-3*4S*RN	Not in molt - old
30318	F	5.5	1-4*5-6S*RN	Not in molt - old
30319	F	4.5	1-3*4-5S*RN	R1, L1 one other

Summary : Mean Primary Index : \$ 4.6

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Nov. 14-15 Makin Atoll, Gilbert Islands

Gygis alba

<u>Number</u>	<u>Sex</u>	<u>Brood Patches</u>	<u>Gonads</u>	<u>Primaries</u>	<u>Rectrices</u>
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30280

30281

30283

30284

30288

Anous stolidus :

<u>Number</u>	<u>Sex</u>	<u>Brood Patches</u>	<u>Gonads</u>	<u>Primaries</u>	<u>Rectrices</u>
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30285

30286

30287

30288

Anous minutus :

<u>Number</u>	<u>Sex</u>	<u>Brood Patch</u>	<u>Gonads</u>	<u>Primaries</u>	<u>Rectrices</u>
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30289

Yes

Not in molt

No molt

Sterna sumatrana

<u>Number</u>	<u>Sex</u>	<u>Brood Patch</u>	<u>Gonads</u>	<u>Primaries</u>	<u>Rectrices</u>
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30292

Y-0* P1, P6

No molt

30294

No molt

No molt

30295

No molt

?

30296

Rt. P5N

No molt

30297

P4 S.

No molt

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Nov. 15 Makin Atoll, Gilbert Islands.

In to Butaritari Island by 8:30 to pick up Lehner and Wislocki who stayed overnight. We then moved down to some sand flats along the lagoon. These flats were extensive and were about 1-3 mile wide and perhaps three ? miles long. At low tide there was much coarse sand interspersed with low pools. Some sort of grass was much in evidence in the deeper water.

There were large numbers of shorebirds present. While I got nothing resembling an accurate estimate I suspect that the stretch we worked contained not less than 200 Golden Plover and 200 Ruddy Turnstone with Wandering Tattler more numerous than either species. (Although these figures may well be low.) There were many Godwits (more than 40 seen I should guess) and two species of Curlew, Bristle-thighed and the Whimbrel. Of the two curlew, more of the individuals that I saw were Bristle-thighed than were Whimbrel.

Reef Herons were more abundant here than any other place we visited on this trip. I saw (counted) 30 plus in one sweep of my binoculars along the lagoon shore. These birds seemed to prefer the edge of the sand flats bordering the lagoon where the water pools were deeper probably because of the number of fish in these small pools. There was an almost exact 50-50 ratio between white and dark phase birds, and strangely enough I noted no particularly mottled individuals. Most of the dark phase birds were very dark, appearing almost black at a distance but one individual seen was grayish brown, whether due to basic difference in plumage or to age and feather wear I do not know.

Some 15 Hawaiian Noddies were seen, as were a few Fairy Tern, Common Noddy, and Crested Tern, one of which was roosting on the edge of the lagoon.

The birds were very jumpy and as a group we had relatively poor results. Binion shot a Bristle-thighed Curlew, Larry shot a Curlew

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Nov. 15 Makin Atöll, Gilbert Islands

and a Godwit, and I shot three Godwits with four shots.

The bill size on the Godwits varied tremendously. Two individuals had bills only about half as long as the other two. These birds with the short bills weighed less also. (They looked different enough so that the others ~~that~~ thought that they might be two different species.) Later, when I skinned the birds in the afternoon it proved to be a case of sexual dimorphism with the males possessing the short bills and the females the long bills.

Movie : Bye Bye Birdie (yeech) and My Favorite Spy.

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Nov. 16. Maiana Atoll, Gilbert Islands.

In to the northern end of Maiana by 1100. The reef was very shallow and it took us along time to reach the shore. The expanse of flats was more than a mile across and the outer section was primarily rocky coral which became more and more sandy as you approached the island. Triggerfish were seen in the shallow pools among the coral and brittle stars were numerous. Ecologically these flats appear to very different from those found on Makin. This area supported primarily Wandering Tattlers and Reef Herons with a few Crested Terns perched on the outer rocks.

Binion went to the village on the left with George while Larry went one way with the 12 gauge and Ken and I went the other with the 16. As we moved south along the beach the area became more and more sandy and we spotted scattered numbers of Ruddy Turnstone and Golden Plover as well as 1 or 2 Bristle-thighed Curlew and about 8 Godwits. Some 15 Crested Tern were roosting on the sand flats, both adults and immatures, but I was unable to obtain any.

One of the small islets (twenty yds. across) off the end of the village towards which we were headed had about 6 Black-naped Terns on it. Adults were with well flying immatures. Some 20-30 Common Noddies were seen in the Palms bordering this village, and small numbers of Fairy Tern and Hawaiian Noddy were flying overhead.

Returned to the ship by 1:00 P.M. and the ship shifted anchorages to the southern end of the island. All of us went ashore with the exception of Larry, who stayed on the ship to skin birds. The trip in to the village took 1 1/2 hours by raft and it was 4:15 before we reached the island. Ein single bare-breasted was present on shore but was a great disappointment.

By the time Binion finished talking with the police officials, etc, it was nearly 5. I finally got out with the shotgun and worked to the south of the village on the outer beach for about one mile. In this stretch we saw about 200 Ruddy Turnstone, 50 Golden Plover, 40 Wandering Tattler,

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Nov. 16. Maiana Atoll, Gilbert Islands.

1 Bristle-thighed Curlew, 1 "himbrel, 25
Hawaiian Noddy, 6-7 Common Noddy, 6-7 Reef Heron,
and 1 Fairy Tern .

One of the Ruddy Turnstone which I shot and which had flown away was lying on its side in the sand surrounded by a group of other Turnstones which appeared to be hostile to the injured bird. I fired at the bird to put it out of its misery and ended up with at least 7 other birds as well.

The Hawaiian Noddies seen were feeding at the edge of the shore , and dropped and fluttered in their typical feeding flight movements.

A Reef Heron came over to investigate the corpses of the three Ruddy Turnstones that I got on my second shot. I did not find out what would have happened as we were to collect a large series of birds in as short a time as possible.

A single Frigate bird was seen flying over the island but the species was not determined.

Binion decided to stay overnight on the island and asked the magistrate if we might have a place to stay. We were given the use of the transient house, a magnificent and beautiful example of Gilbertese architecture.

We spent the evening speaking with the Gilbertese while I suffered with a raging toothache until Binion told me that we had aspirin with us.

The natives sang several sorts of songs for us. Group songs, one ritual song, (which was rather monotonous and had pronounced nasal sounding sounds in it.), and several forms of what could best be called ballet, sitting subspecies. However, the natives had good voices , (Better than most of ours at any rate) and sang several lively songs which were both melodic and enjoyable.

It seems that many of their ritual songs are written in an older language which is only known to the more mature individuals of the group and which must be learned from them, before the composer does any formal composing. Several of the songs they sang us were known to have been passed down from person to person for at least 50 years.

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Limosa sp :

30220 - 1-3*4-5S, RN ---- (10tfp), R1, R2
30221 - 1-5*6-9S*10D ---- Feathers in sheath progres-
sively older, 10 indicates central location
of molt center ?, rest do not ? //???
Tail coverts in molt (L1 D ?)

Heteroscelus incanum :

<u>Number</u>	<u>Sex</u>	<u>P.I.</u>	<u>Primaries</u>	<u>Rectrices</u>
30325		5.5	1-4*5-6S* RN	In molt
30351	F	8.5	1-8*9-10N	Old, not molting.

Summary : Mean Primary Index : 7.0

Anous stolidus

<u>Number</u>	<u>Sex</u>	<u>Brood Patch</u>	<u>Gonads</u>	<u>Primaries</u>	<u>Rectrices</u>
30327	F	No	1.0.7mm	1-8*9S*10N	R1 in sheath but well gro.

Summary: Recheck this bird for a brood patch.
Gonad size indicates high probability. Error probable.

Anous minutus :

<u>Number</u>	<u>Sex</u>	<u>Brood Patch</u>	<u>Gonads</u>	<u>Primaries</u>	<u>Rectrices</u>
30328	M	Yes	7 mm.	9pp-1-7*8D*9-10N	Not molt
30329	M	Yes	7 mm.	New?	Y-0, R1, R3, L2
30353	M	Yes*No	6 mm.	Not in molt	R1, L5
30354	M	No	9 mm.	Not in molt	R1, (very new)
30355	F	No	10 3mm.	Not in molt	Not in molt
30356	M	Yes	10 mm.	Not in molt	R4, L4

Summary: ©These birds were checked with more care
than usual, and despite the large gonad size of
several, there was no brood patch. Just coming into
breeding ?

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Arenaria interpres :

<u>Number</u>	<u>Sex</u>	<u>P.I.</u>	<u>Primaries</u>	<u>Rectrices</u>
30322		4.0	1-3*4S*RN	R1, L1, R3 (R3 older)
30323		0.0	Completed	Completed
30324		2.0	1*2S*RN	In molt
30331	M	0.0	Completed	R1 D
30332	F	3.0	1-2*3S*RN	R4, R5, L4, L5 (5's older)
30333	F	2.5	1-2*RN	Completed
30334	F	0.0	Completed	R1, L1
30335	F	0.0	Completed	R1, L1
30336	F	4.0	1-3*4S*RN	4 molting, 1 missing
30337	M	3.5	1-3*RN	R4, L4
30338		2.5	1*2-3S*RN	R4, R6, L4, L6
30339		2.5	1-2*RN	R3, L3
30340		0.0	Completed	Completed or not begun.
30341		3.0	1-2*3*RN	L2, L5, R2, R5 (L8 solder)
30342		4.0	1-3*4*RN	R1, L1, (R6 D?)
30343		5.0	1-4*5S*RN	R1, R3, L1, L3 (1's older)
30344		0.0	Completed	R2
30345		3.0	1-2*3S*RN	R4, R6, L2 (OY 2-6-4-)
30346		5.0	1-4*5S*RN	L2
30347		3.5	1-3*4-9N*10S	L4 (R3 D)
30348		6.0	1-5*6S*RN	L1, R1

Summary: Mean Primary Index : 2.5

Pluvialis dominica

<u>Number</u>	<u>Sex.</u>	<u>P.I.</u>	<u>Primaries</u>	<u>Rectrices</u>
30326	M	3.0	1-2*3S*RN	In molt
30349		3.0	1-2*3S*RN	R1, 2, 3, 4, 6, L2, 3, 6,
30350	M	3.0	1-2*3S*RN	O-Y (L2, 3, 6; R3, 2, 6)

Summary : Mean Primary Index : 3.0

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Nov. 16 - Maiana Atoll, Gilbert Islands.

Sterna sumatrana

<u>Number</u>	<u>Sex</u>	<u>Brood Patch</u>	<u>Gonads</u>	<u>Primaries</u>	<u>Rectrices</u>
30330		No.		P4 in S.	Y-O: L1, R4
30357		No		(L)1-3*4S*RN (R)2,7 in S.	R6, L6N,

Summary : Bird 30330 was shot when it flew back in response to the cries of a well grown young which was capable of flight. While this bird may not have been the parent it seems likely that it was.

Whimbrel

Adult female : No wing feathers dropped or in sheath.
All 12 tail feathers present and apparently old.
(30352)

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Nov. 16 - Maiana Atoll, Gilbert Islands

Limosa sp.

30220 - 1-3*, 4-5S* RN - (10tfp) - R1, R2

30221 - 1-5*6S** 6-10S- progressively older

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Nov. 17, 1964 - Maiana Atoll, and Kuria Atoll

We got up at some godawful hour (5:45) I think it was, and returned to the ship. Binion shot a Black-naped Tern on the way, an adult.

After eating a hasty breakfast I spent the rest of the morning preparing the specimens we collected yesterday including the 18 Ruddy Turnstones (12th of which I prepared as alcoholics) Although, my enthusiasm was perhaps too great yesterday, I got a number of interesting notes on the molt in this species, since this was the only adequate series we have gotten from any atoll.

Later I packed away more of my eyes. I think I have about 5 dozen now, which should furnish the beginnings of a small scale investigation. Probably either Laridae or Scopacidae and Charadriidae should be used as base groups for this proposed, if slightly amateurish, pilot study.

We reached Kuria atoll and were ashore on Kuria Island, the more southern of the two islands by four. This island did not have the expanse of sand flat that Makin and Maiana did and appeared to be a typical Coconut Island. Very many of the coconuts were dead, with their crowns broken off, possibly from the typhoon of 1958. These broken stubs frequently have Fairy Terns ~~nesting on them~~ perching on them and these birds may be nesting. Of the four Fairy Terns collected today, (of which two were on such stubs) all had brood patches.

Hawaiian Noddies occur in small numbers and many nests (although not nearly so thickly found as on Makin) were situated in the limbs of dead trees. Some of these nests appeared to be occupied.

Common Noddies were perhaps the most numerous tern in the mile or so stretch of interior we worked south of the village. They were commonly observed perching on palm fronds some 60-75 feet up and seen flying over just as frequently.

Using the 12 gauge I collected 12 birds with

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Nov. 17, 1964 - Kuria Atoll

12 shots. (5 Common Noddy, 4 Hawaiian Noddy, and 3 Fairy Tern) Huber and Binion aided by Ken, collected the prize of the day, however, a large pigeon, which I think is Ducula pacifica. This bird has a short bill and a high protruberance on the cere. It has 14 tail feathers. They saw another pigeon and Binion winged it but it was not obtained.

Larry mentioned seeing one Reef Heron.

As I joined them on the way back to the raft we heard one or more Sooty Terns flying over but were unable to spot them. At this time it was about dusk.

While we were sitting on the raft, surrounded by umpteen bushel of children, they brought us a "frog" which proved to be a Bufo toad which I do not know but which Larry felt was different from that form found on Palmyra Island.

The natives are very friendly but Larry turned down the offer.

Saw several dragonflies on the island. There are areas in which there are very deep pits (taro pits ???)

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Nov. 18. Kuria Atoll.

Six of us went ashore in the morning. Larry and Binion went to investigate Oneaka Is. (the more northerly one) and the other four of us went to Kuria again. George and Phil walked northward while Ken and I took the twelve gauge and went south. There were very few birds on the flats just before the area of lower vegetation where the Pemphis occurs. Tattlers, Golden Plovers, Ruddy Turnstones, Reef Herons, and a single Bristle-thighed Curlew. There were probably not more than 40 Ruddy Turnstone, 25 Golden Plover, 15 Wandering Tattlers and 5-6 Reef Herons (both white and black phases - No mottled birds seen) On the way down I collected a Bristle-thighed Curlew and on the way back a Ruddy Turnstone. On the way back Ken collected 3 Golden Plover and a Ruddy Turnstone. The birds were skittish and difficult to approach.

A single Sooty Tern was seen flying over the sand flats about 9:30 headed north.

We went to the inland "pond" that Binion Larry, and Ken went to Yesterday afternoon. There were practically no shorebirds at it. About 5 Ruddy Turnstone and 3 Golden Plover were there.

This area had much low Pemphis growth about it and apparently extended ~~from~~ for some distance to the south. We found another inland pond between the first pond and the shoreline of the lagoon but there were no birds upon it and very little standing water.

We moved down the coast a short distance and noted that the area became more and more rocky. Birds were very scarce in this area.

On the edge of the Pemphis area near the lagoon I shot two Hawaiian Noddies from a nest. Both proved to have brood patches. When I shot a large number (200-300) Hawaiian Noddies swirled into the air. I should estimate that in this area covered this morning there were not less than 500-700 Hawaiian Noddies, 300-400 Common Noddies and 100-200 Fairy Terns.

Nov. 18. Kuria Atoll

We then returned to the raft and moved up to Oneaki Island to pick up Binion and Larry. On the beach were some 22 Crested Terns and 3 Black-naped Terns roosting together.

When Larry and Binion returned we learned that they had seen a Whimbrel, about 6 Sharp-tailed Sandpiper (of which they had collected four) and a Frigatebird. They had collected another Pacific ? Pigeon as well. *No @B*

Back out to the ship and through the usual bird preparation work. I then spent the rest of the day until about 8:30 or 9:00 skinning birds.

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Nov. 17-18. Kuria Atoll, Gilbert Islands

Anous stolidus

<u>Number</u>	<u>Sex</u>	<u>Brood Patch</u>	<u>Gonads</u>	<u>Primaries</u>	<u>Rectrices</u>
30359	M	Yes	9 mm.	1-9*10N	Not in molt
30360	M	Yes	10 mm.	1-7*8N*9old 1-7*8S*9old	* 10N (RT) * 10N (LF)
30365	M	Yes	10 mm.	Not in molt	Not in molt
30361	F	No	9-1 mm.	1-2*3S*RN	R5, L5
30362	F	No	12-3mm.	Not in molt	Not in molt
30363	F	No	12 mm.	1*2-3S*RN	(11tf) 0-Y: L1, R4, L2
30364	F	Yes	12-2mm.	1S; R?	R3, R5, L3
30382	M	Yes	6 mm.	Not in molt	L6, L1(Rm.ofS)

Summary : 5 of 8 birds collected possessed brood patches, but 3 out of 4 females did not. Only 3 birds were not molting in the flight feathers and of these two possessed brood patches. All three birds which were not molting in the rectrices possessed brood patches.

Anous minutus

<u>Number</u>	<u>Sex</u>	<u>Brood Patch</u>	<u>Gonads</u>	<u>Primaries</u>	<u>Rectrices</u>
30366	M	Yes	10 mm.	Not in molt	R1, R3
30367	F	No	10-2m.	Not in molt	(0-y)L4, R3, L5
30368	F	No	11-3m.	Not in molt	Not in molt
30369	M	No	10 mm.	Not in molt	Not in molt
30375		No		Not in molt	Not in molt
30378	M	Yes	10 mm.	Not in molt	Not in molt
30379	F	Yes	11-5m.	Not in molt	Not in molt
30380	F	Yes	15mm.	Not in molt	R1
30381		Yes		Not in molt	Not in molt

Summary : ? error on brood patches ?

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Nov. 17-18 Kuria Atoll, Gilbert Islands

Arenaria interpres :

<u>Number</u>	<u>Sex</u>	<u>P.I.</u>	<u>Primaries</u>	<u>Rectrices</u>
30384	F	4.7	1-4*5S*RN (RT) 1-3*4D?*5G*RN(LF)	R3, (10tf)L2(Y) L4D7
30385	M	4.0	1-3*4S*RN	0-Y:L3, R2, R1, R6.

Summary : Mean Primary Index 4.4

Pluvialis dominica

<u>Number</u>	<u>Sex</u>	<u>P.I.</u>	<u>Primaries</u>	<u>Rectrices</u>
30386		2.0	1*2S*RN	(11tf)R5, R6, L5
30387	F	2.0	1*2S*RN	In molt
30388	M	4.0	1-3*4S*RN	In molt

Summary : Mean Primary Index 2.7

Erolia acuminata

<u>Number</u>	<u>Sex</u>	<u>P.I.</u>	<u>Primaries</u>	<u>Rectrices</u>
30389	F	0.0	Completed	(11tf)
30390	F	0.0	Completed	(11tf)
30391	M	0.0	Completed	Completed
30392	M	0.0	Completed	Completed

Summary : Primary Index Mean 0.0. Apparently the furthest along in molt of any shorebird collected in any numbers on this trip.

Numenius tahitiensis

<u>Number</u>	<u>Sex</u>	<u>P.I.</u>	<u>Primaries</u>	<u>Rectrices</u>
30383	M	8.0	1-6*7-9S, 10D	Tail badly worn, not molting

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Nov. 17-18 Kuria Atoll, Gilbert Islands

Gygis alba

<u>Number</u>	<u>Sex</u>	<u>Brood Patch</u>	<u>Gonads</u>	<u>Primaries</u>	<u>Rectrices</u>
30370	?	Yes	?	Not in molt	Not in molt
30371	?	Yes	?	Not in molt	Not in molt
30372	F	Yes	922.5	Not in molt	Not in molt
30373	M	Yes	6 mm.	Not in molt	Not in molt
30374	F	Yes	12-3	Not in molt	Not in molt

Sterna sumatrana

<u>Number</u>	<u>Sex</u>	<u>Brood Patch</u>	<u>Gonads</u>	<u>Primaries</u>	<u>Rectrices</u>
30376	Imm			1-6*7S*RN	R2, L2
30377		No		1-3*4S*RN	Recently molting (lip)

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Nov. 19 Kuria Atoll -

Binion went ashore early in the morning unfortunately without the gun. He reports that he could have easily have collected some Crested Terns. He also saw a godwit which he believes is the same species as we have been collecting on the other atolls.

I learned last night that this species is frequently eaten by the natives and is considered especially good eating.

In the afternoon the ship moved over to Aranuka Atoll and Binion and the rest went ashore while I continued to skin birds on the ship.

Nov.20-26 - En route to Honolulu

Life is simple and routine. Skinned birds. Skinned more birds. Suffered from toothache. Skinned more birds. Got a mild case of salacylic poisoning. Skinned more bird. More toothache. And so on.

Amerman took over the at-sea paperwork. Numbers of interesting birds were shot. Two White-necked Petrel, Slender-billed Shearwaters, Phoenix Island Petrel, Leache's Petrel.

Nov. 27

66

While the others kept watch spent the day picking up and packing. Inventoried gear and bands. (The 25th)26th worked on schedules and notes. Arrived Honolulu 5:30
Nov. 28

Felt ready for a hard round of "Martini" in the morning. Pulled my sagging shape together and worked on notes. More toothache.

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Nov. 19 Aranuka Atoll, Gilbert Islands, Pacific O.

Thalasseus bergii : In two individuals examined of three collected, neither had a brood patch. These two birds were males and had testes 5x4 and 5x3 mm. respectively. The unexamined bird, a female, had a relatively small ovary (10 mm) with the largest ovum 2 mm. (No recent breeding ?)

Anous stolidus

<u>Number</u>	<u>Sex</u>	<u>Brood Patch</u>	<u>Gonads</u>	<u>Primaries</u>	<u>Rectrices</u>
30400	F	Yes	14mm3mm	Not in molt	R3 in sheath
30401	F	No	10mm	1-2-RN	R2 in sheath
30402	F	Yes	1.o.4mm	10 dropped?	Not in molt
30404	F	Yes	1.o.3mm	R.P10 in sh. L all present	Not in molt
30403	?	Yes	-----	1&10 in sh. 10 younger	(11) R2 Dr. R4 Sh.
30406	M	Yes	10 mm.	Not in molt	Not in molt
30405	M	No	4 mm.	1-4*5S*6-9N* 10S	R5, L6 R5 older

Summary : Brood patches were found in both sexes of the Common Noddy and 5 out of 7 birds had brood patches. In both males and females, gonads were larger in birds possessing brood patches than in those which did not. Of 8 birds 6 were molting in the primaries and 5 were molting in the rectrices. All those individuals which did not exhibit molt were those which possessed brood patches.

Anous minutus

<u>Number</u>	<u>Sex</u>	<u>Brood Patch</u>	<u>Gonads</u>	<u>Primaries</u>	<u>Rectrices</u>
30407	F	No	12 mm.	1S, RN	R5, L6 (5, Old)

Gygis alba

<u>Number</u>	<u>Sex</u>	<u>Gonads</u>	<u>Brood Patch</u>
30408			Yes
30409			No
30410			Yes

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Nov. 19 Aranuka Atoll, Gilbert Islands, Pacific O.

Gygis alba (cont.)

<u>Number</u>	<u>Sex</u>	<u>Gonads</u>	<u>Brood Patch</u>
30411			Present
30412			No
30413			Yes,

Summary : As has generally proved to be the case this trip, Fairy Terns in all six specimens were molting in neither primaries and rectrices.

Sterna sumatrana :

<u>Number</u>	<u>Sex</u>	<u>Brood Patch</u>	<u>Gonads</u>	<u>Primaries</u>	<u>Rectrices</u>
30414	F	Yes	1.0.4mm.	1*2N not full grown 3-5N*6S*RN RT. 2,6 inS.	R2 in S.

Numenius tahitiensis : 30415 : Primaries 1*7*old, 2-3 in sheath, rest old? (Recheck) Tail L1 in sheath rest of feathers old.

Heteroscelus incanum

<u>Number</u>	<u>Sex</u>	<u>Pri. Index.</u>	<u>Primaries</u>	<u>Rectrices</u>
30416	M	8	1-7*8S*RN	R1, L1 Rsold
30417	M	5.5	1-4*5,6S*RN	R1, L1 Rsold
30418	M	6.5	1-5*6,7S*RN	R1, L1 Rsold

Summary : Tail molt apparently beginning.
Mean primary index 6.7.

Pluvialis dominica :

<u>Number</u>	<u>Sex.</u>	<u>P. Ind.</u>	<u>Primaries</u>	<u>Rectrices</u>
30423		1	1S*RN	In molt
30424	M	0	Completed	L3, L4 (12fp)
30425	F	2	1*2S*RN	R5, L5

Summary : Primary molt almost completed. Mean primary index. 1.0.

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Nov. 19 Aranuka Atoll, Gilbert Islands, Pacific O.

Arenaria interpres :

<u>Number</u>	<u>Sex</u>	<u>P.I.</u>	<u>Primaries</u>	<u>Rectrices</u>
30419	?	0	Completed	Completed
30420	M	0	Completed	Completed
30421		4	1-3*4S*RN	R5 and L5
30422	F	0	Completed	R5 and L5

Summary : Mean Primary Index 1.0

Still to be Incorporated in Field Notes

1. Catalog
2. Relavant data from green banding book
3. Molt data from early part of trip.
4. Initial generalizations and synthesis to be derived from molt data.
5. Short summary pointing out observations of particularly pertinent interest either in terms of the Projects goals or from a more well rounded ornithological viewpoint.
6. //???

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Catalog - 1964

Oct. 18 Arumenii Is., Bikar Atoll, Marshall Is.

600 Rattus exulans - Male - TL- 255 mm.,
HF - 27 mm. T - 134 mm.

601 Rattus exulans

Oct. 27 Bogengoa Is, Erikub Atoll, Marshall Is.

603 Crocethia abba - Female (30133) Bill black,
feet and legs black; iris, dark brown.
Ovary 2 mm., Weight 47 gm.

Oct. 26 Aradojairen Is, Erikub Atoll, Marshall Is.

604 Sterna sumatrana - Male (30127)
Bill black; feet and legs black; iris
dark brown; Testes 5 mm. Weight 84 gm.
Brood patches present.

605 Sterna sumatrana - Female (30128)
Bill black; feet and legs black; iris
dark brown. Ovary 12 mm. Weight 77 gm.
Brood patches present.

606 Sterna sumatrana - Female (30125)
Bill black; feet and legs black; iris
dark brown. Ovary 8 mm. Weight 77 gm.

Oct. 27 Aradojairik Is, Erikub Atooll, Marshall Is.

607 Sula leucogaster - Female (30136)
Feet and legs pale yellowish green; bill
facial skin, and gular pouch pale
yellowish green; iris gray flecked with
brown; black spot before eye. Ovary
30 mm. Lg. Ovum 4 mm. Weight 1271 gm.
(Breeding bird)

Oct. 25 Aradojairen Is, Erikub Atooll, Marshall Is.

608 Heteroscelus incanum - Male (30118)
Feet and legs dull yellowish green; bill
black; iris dark brown. Testes 2 mm.
Wt. 117 gm.

609 Heteroscelus incanum - Male (30119)
As in 30118. Testes 1.5 mm. Weight 105 gm.

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Oct. 26 Aradojairen Is, Erikub atoll, Marshall Is.

610 Anous stolidus - Male (30123)
Feet and legs dark brownish; bill black;
iris dark brown; Testes 7 mm., Wt. 199 gm.
No brood pouches present.

611 Anous stolidus - Male (30121)
Bill and claws black, feet and legs dark
brown; iris dark brown. Testes 8 mm.
Weight 198 gm. No brood parches.

Oct. 26 Jabonwar Is., Erikub Atoll, Marshall Is.

612 Anous stolidus - Male (30120)
Feet and legs blackish brown; bill black;
iris dark brown. Testes 5 mm. Wt. 191 gm.
No brood pouches.

Oct. 17 Arumenii Is. , Bikar Atoll, Marshall Is.

613 Puffinus pacificus - Male (30035)
Testes 3 mm., Wt. 353 gm.

Oct. 22 Taka Is., Taka Atoll, Marshall Is.

614 Sterna fuscata - Female (30082)
Ovary 12 mm. Wt. 183 gm. Brood patches
present.

Nov. 4 Roi Is., Kwadjalein Atoll, Marshall Is.

615 Arenaria interpres - Male (30189)
Iris dark brown; bill black; legs and
feet orange, dusky at joints. Testes 2 mm.
Wt. 98 gm.

616 Arenaria interpres - Female (30182)
Soft parts same as 30189. Ovary : 3 mm.
Weight : 95 gm.

617 Erolia acuminata ? - Female (30168)
Iris dark brown; bill brownish gray at
base of lower mandible, rest black; feet
and legs pale olive green, claws black.
Ovary 1.5 mm. Wt. 65 gm.

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Catolog - 1964

Oct. 20 Taka Is, Taka Atoll, Marshall Islands

618 Gygis alba - Male (30053)
Bill black at tip, blue at base; feet and
legs bluish-gray with whitish webs; iris
dark brown. Testes : 4 mm. Wt. 95 gm.

Nov. 4 Kwadjalein Is, Kwadjalein Atoll, Marshall Is

619 Erolia acuminata - Female (30169)
Iris dark brown; bill brownish at base of
lower mandible, rest black; legs and feet
pale olive green; claws black. Ovary
5 mm. Weight 60 gm.

Oct. 23 Taka Is., Taka Atoll, Marshall Islands.

620 Anous stolidus - Female (30091)
Bill, feet, legs, claws black (?), Iris
dark brown. Ovary 12 mm. Lg. ov. 2 mm.
Weight 165 gm.

Roger Clapp
Marshall - Gilbert trip

- Nov. 16 Maiana Island, Maiana Atoll
690 - Anous minutus 30363 testes 6 mm
wt 111 gm
691 - Arenaria interpres 30334 ovary: 9 mm
wt. 113 gm
692 - " " 30331 testes 1 mm
wt. 102 gm
- Nov. 19 - Araruka Atoll
693 - Anous stolidus 30405 testes: 4 mm
wt. 198 gm
- Nov. 16 - Maiana Island, Maiana Atoll
694 - Pluvialis dominica 30350 testes 3 mm
wt 113 gm
695 - Arenaria interpres 30332 ovary 10 mm
wt 108 gm
696 - " " 30333 ovary 12 mm
wt 107 gm
- Nov. 19 - Aranuka Atoll
697 - Arenaria interpres 30419 - Sex ?
117 gm
- Nov. 16 - Maiana Island, Maiana Atoll
698 - Arenaria interpres 30336 - 97 gm
ovary 12
699 Arenaria interpres 30335 - ovary 7 m
wt 98 gm
- Nov. 18 - Kuria Island; Kuria Atoll
700 Arenaria interpres 30384 ovary: 8 mm
wt: 88 gm
701 - Arenaria interpres 30385 testes: 2 mm
wt: 111 gm
- Nov. 19 Aranuka Atoll
702 - Hteroscelus incanum 30417 testes: 3 mm
wt: 127 gm
- Nov. 17 - Kurra Island, Kurra Atoll
703 - Anous stolidus 30363 ovary 12 mm
wt. 206 gm
- Nov. 10 - Enybor Island, Jaluit Atoll 30208 testes 7 mm
wt 207 gms
704 - Anous stolidus
- Nov. 4 - Roi Island, Kiwajalein Atoll
705 - Arenaria interpres 30178 ovary 12 mm
wt. 92 gm
706 - " " 30187 ovary 12 mm
wt 108 gms

Roger Clapp

- Nov 4 - Roi Island, Kwajalein Atoll
707 - *Arenara interpres* - 30181 - testes 2 mm
wt. 98 gm
- 708 - *Arenara interpres* 30180 ovary 8 mm
wt. 98 gm
- Oct. 25 - Enego Island, Erikub Atoll
709 - *Anous minutus* 30112 - testes - 6 mm
wt - 107 gm
- Nov. 4 - Roi Island, Kwajalein Atoll
710 *Arenaria interpres* 30183 - ovary 9 mm
weight 94 gm
- Nov. 13 - Kotabu Island, Makin Atoll
711 - *Thalasseus bergii* 30271 - testes - 5 mm
weight 357 gm
- Nov. 4 - Roi I; Kwajalein Atoll
712 - *Pluvialis dominica* - 30177 - testes 2.5 mm
weight 119 gm
- Nov. 13 - Korabu Island, Makin Atoll largest ovum 4 mm
713 - *Anous minutus* 30258 - ovary 14 mm wt. 106 gm
- Nov. 11 - Lijeron Island, Jaluit Atoll.
714 - *Anous minutus* 30232 testes: 8 mm
weight 109 gm
- Nov. 19 - Aranuka Atoll 30397 - ovary 10 mm
largest ovum: 2 mm
weight 313 gm
- 715 *Thalasseus bergii*
- Nov. 13 - Kotabu Island, Makin Atoll
716 - *Pluvialis dominica* 30262 testes 1.5 mm
wt. 11gm
- 717 - *Anous minutus* 30251 ovum 15 mm
largest ovum 5 mm
weight 101 gm
- 718 - *Anous minutus* - 30250 ovary 11 mm
large ovum 4 mm
weight 105 gm
- Nov. 18 - Oneaka Island; Kuria Atoll
719 - *Anous minutus* 30380 ovary 15 mm
ruptured follicle
- Nov. 11 - Lijeron Island, Jaluit Atoll - weight 96 gm
720 - *Anous minutus* 30234 weight 95 gm
testes 1 mm
- Nov. 18 Oneaka Island - Kuria Atoll
721 - *Anous stolidus* 30382 testes 6 mm
weight 188 gm

Roger Clapp

November 4 - Roi Island, Kwajalein Atoll

- 722 - *Heteroscelus incanum* 30172 ovary 5 mm
weight 81 gm
723 - *Heteroscelus incanum* 30175 - testes 1.5 mm
weight 102 gm
724 - " " 30173 - Sex ?
weight 91 gm

October 18 - Jaboerukku Island; Bikar Atoll

- 725 - *Sterna fuscata* 30046 - ovary: 18 mm
large ovum: 4 mm
209 gm
726 - *Sterna fuscata* 30048 testes: 3 mm
weight 196 gm

October 25 - Loj Island; Erikub Atoll

- 727 - *Anous stolidus* 30110 testes 9 mm
weight 197 gm

October 22 - Taka Island; Taka Atoll 30080

- ovary 8 mm
large ovum 2 mm
weight 190 gm

November 18 - Oneaka Island, Kurra Atoll

- 672 - *Erolia acuminata* O: 6 mm
wt: 59 gm 30390
673 - " " T: 2.5 mm
wt: 67 gm 30391
674 - " " T: 3 mm
wt: 69 gm 30392

Nov. 18 - Kuria Island, Kurra Atoll

- 675 - *Pluvialis dominica* T: 3 mm
wt: 113 gm 30388
676 - *Anous stolidus* T: 10 mm
wt. 190 mm 30365
677 - *Anous minutus* O: 11 mm
large ovum: 3 mm
wt: 113 gm 30368

Oneaka Island, Kurra Atoll

- 678 - *Erolia acuminata* ovary 6 mm
weight 61 gm 30389

Kuria Island, Kuria Atoll

- 679 *Anous stolidus* Testes: 10 mm - 30360
weight: 212 gm
680 *Numenius tahitiensis* testes: 4 mm 30383
weight: 427 gm

Clapp, Roger

November 17 Kurra Island, Kurra Atoll

681 Anous stolidus ovary 12 mm
large ovum 3 mm 30362
weight 168 gm

682 - Anous minutus ovary 10 mm
large ovum 2 mm
101 gm 30367

November 19 - Aranuka Atoll

683 - Arenaria interpres Testes 1.5 mm
weight - 11 gm 30420

November 17 - Kurra Island, Kurra Atoll

684 - Anous stolidus ovary 9 mm
large ovum 1 mm. 30361
158 gm

November 19 - Aranuka Atoll

685 - Anous stolidus ovary: 14 mm
large ovum: 3 mm 30400

686 - Numenius tahitiensis weight 160 gm
ovary 12 mm 30415

November 17 - Kurra Atoll, Kurra Island

687 - Gygis alba testes 6 mm 30373
weight 117 gm

688 - Gygis alba - ovary 12 mm
large ovum 3 mm
weight 118 gm 30374

689 - Anous stolidus ovary 12 mm 30364
large ovum 2 mm
weight 198 gm

November 13 - Kotabu Island, Makin Atoll

649 - Anous minutus ♂ testes 10 mm 12 gm 30249

650 - " " " 30248 Testes 10 mm 106 gm

651 - " " " 31256 " 7 mm 113 gm

652 - " " " 30254 " 8 mm 108 gm

653 - " " ♀ 30255 ovary 11 mm 95 gm
large ovum 3 mm.

654 - " " ♂ 30257 testes 7 mm 125 gm

655 - " " ♀ 30252 large ovum 3 mm 111 gm
ovum 12 mm

656 - " " ♂ 30253 testes 10 mm 105 gm
weight 105 gm

November 15 - Butaritari Island Makin Atoll

657 - Limosa sp. ♂ 30316 testes 3 mm
weight 291 gm

658 - " " ♀ 30318 ovum 13 mm - granular
weight 325 gm

November 15 - Butaritari Island, Makin Atoll
 659 *Arenaria interpres* ♂ 30317 Testes: 4 mm
 weight 284 gm
 660 - " " ♀ 30319 ovary 12 mm gran.
 weight 324 gm

November 16 - Maiana Island; Maiana Atoll
 661 - *Arenaria interpres* - alcoholic 30338 - 93
 m 662 - " " " 30339 99
 663 - " " " 30340 89
 664 - " " " 30341 101
 665 - " " " 30342 97 } weight
 666 - " " " 30343 105
 667 - " " " 30344 97
 668 - " " " 30345 97
 669 - " " " 30346 104
 370 670 - " " " 30347 109
 671 - " " " 30348 104

November 3 - Kwad, Kwad
 621 - *Numenius phaeopus* 30161 testis 3 mm weight 324 gm
 622 - *Capella* sp 30164 Testis 2 mm weight 127 gm

October 20 - Taka Taka
 623 - *Arenaria interpres* (30061)
 Sex? 92 gm

624 - " " 30062
 Sex? 92 gm
 4 November Kwad Kwad
 625 - *Erolia* ? sp. ? 30167 ♀ 55 gm
 very fat ovary 4 x 2 mm

November 3 Kwad Kwad
 626 - *Crocethia alba* 30166 ♂ testes 1 mm weight 54 gm
 very fat

October 27 - Aradojairik Island, Erukub Atoll
 627 - *Gygis alba* 30140 ♀ ovary 13 mm weight 111 gm
 large ovum 2 mm
 egg in ovary

October 24 - Loj Island Erikub
 628 - *Pluvialis dominica* 30104 ♀ ovary 7 mm
 weight 121 gm
 629 - *Numenius tahitiensis* 30105 ♂ testes 5 mm
 weight 393 gm

November 2 - Kwad Kwad
 630 - *Erolia acum.* 30156 Sex? weight 76 gm

November 9 - Kwad Kwad
 631 - *P. dominica* 30203 ♀ ovary 7 mm
 weight 124 gm
 632 - " " 30200 " ovary 8 mm weight 133 gm

Clapp, Roger

November 9 - Kwajalein, Kwajalein

- 633 - *P. dominica* 30201 ♂ testes 2 mm
weight 121 gm
634 - " " 30204 ♂ testes 3 mm
weight 127 gm
635 - " " 30202 ♂ testes 3 mm
weight 121 gm

November 2 Kwajalein, Kwajalein

- 636- *Erolia acuminata* 30153 ovary 8 mm
weight 61 gm

Taka Taka

October 22

- 637 - Sandpiper sp. 30078 testes 1 mm
(very fat) weight 36.5 gm

North Loi Island - Kwajalein

- November 8 638 - *Anous stolidus* 30195 testes 3 mm
weight 200 gm
639 - *Anous minutus* 30190 ovary 8 mm
large ovum 1 mm
weight 110 gm

November 12 Enybor Island, Jaluit Atoll

- 640 - *Anous stolidus* 30244 ovary 14 mm
large ovum 5 mm
weight 186 gm
641 - *Anous minutus* 30243 testes - 3 mm
weight - 105 gm

November 11 Jaluit Island, Jaluit Atoll

- 642 - *Pluvialis dominica* 30218 alcohol weight 120 gm

October 22 - Eruk Island, Taka Atoll

- 643- *Anous stolidus* 30069 ovary 8 mm
large ovum 3mm
weight 154 gm

October 25 - Enego Island, Erikub Atoll

- 644 - *Anous stolidus* 30115 ovary 8 mm
large ovum 3 mm
weight 180 gm

October 24 - Loj Island, Erikub Atoll

- 645 - *Anous minutus* 30098 testes 8 mm
106 gm

October 22 - Eruk Island, Taka Atoll

- 646 - *Anous stolidus* 30070 Alcoholic 190 gm

November 28 - Lagoon - Kwajalein Atoll

- 647 - *Anous minutus* 30191 ovary 9 mm
large ovum 2 mm weight 102 gm

Clapp, Rayer

October 22 - Eruk Island, Taka Atoll

648 - Anous minutus 30073 testes 4 mm November 2
weight 114 gm

649 - " " 30074 testes 2 mm " " " "

650 - " " 30075 testes 2 mm " " " "

651 - " " 30076 testes 2 mm " " " "

652 - " " 30077 testes 2 mm " " " "

653 - " " 30078 testes 2 mm " " " "

654 - " " 30079 testes 2 mm " " " "

655 - " " 30080 testes 2 mm " " " "

656 - " " 30081 testes 2 mm " " " "

657 - " " 30082 testes 2 mm " " " "

658 - " " 30083 testes 2 mm " " " "

659 - " " 30084 testes 2 mm " " " "

660 - " " 30085 testes 2 mm " " " "

661 - " " 30086 testes 2 mm " " " "

662 - " " 30087 testes 2 mm " " " "

663 - " " 30088 testes 2 mm " " " "

664 - " " 30089 testes 2 mm " " " "

665 - " " 30090 testes 2 mm " " " "

666 - " " 30091 testes 2 mm " " " "

667 - " " 30092 testes 2 mm " " " "

668 - " " 30093 testes 2 mm " " " "

669 - " " 30094 testes 2 mm " " " "

670 - " " 30095 testes 2 mm " " " "

671 - " " 30096 testes 2 mm " " " "

672 - " " 30097 testes 2 mm " " " "

673 - " " 30098 testes 2 mm " " " "

674 - " " 30099 testes 2 mm " " " "

675 - " " 30100 testes 2 mm " " " "

Location Oahu — 20°-13'N ; 158°-05'W — 22 min
 Observer R. Clapp + D. Hackman Date 8 June 1968 Time 1300 to 1905
 Weather — Miles 57 Hours 5-43

SPECIES	NUMBERS	REMARKS
Laysan Albatross		
Black-footed Albatross		
Wedge-tailed Shearwater	22	19 light phase, 3 not recorded
Sooty Shearwater		
Slender-billed Shearwater		
Christmas Island Shearwater		
Newell's Shearwater		
Juan Fernandez Petrel		
White-necked Petrel		
Kermadec Petrel		
Phoenix Island Petrel		
Mottled Petrel		
Bonin Island Petrel		
Black-winged Petrel		
Bulwer's Petrel	17	
Leach's Storm Petrel		
Red-tailed Tropicbird		
White-tailed Tropicbird		
Blue-faced Booby		
Brown Booby		
Red-footed Booby	5	3 Ad.; 1 Imm.; 1 subad.
Great Frigatebird sp.	1	Imm.
Lesser Frigatebird		
Golden Plover		
Ruddy Turnstone		
Sooty Tern	78	
Gray-backed Tern		
Common Noddy Tern	5	
Fairy Tern		Shear-Pet = 40
Pomarine Jaeger		Booby = 5
Petrel sp.	1	Frigate = 1
bird sp.	3	Tern = 83
Dolphin sp.	5	Misc. = 3
		Total Mammals 5
		Total Birds 132
		Total Sightings
		Total Flocks 4 (58) Feeding (1) (40)
		Total Species 7 Travel 3 (18)

Location 18°-13'N; 158°-07'W — 15°-56'N; 158°-27'W
 Observer Clapp + Hackman Date 9 June 1968 Time 0535 to 1915
 Weather — Miles 137 Hours 13-40

SPECIES	NUMBERS	REMARKS
Laysan Albatross		
Black-footed Albatross		
Wedge-tailed Shearwater	23	20 dark phase; 2 light ph.; 1?
Sooty Shearwater		
Slender-billed Shearwater		
Christmas Island Shearwater ?	1	
Newell's Shearwater	3	
Juan Fernandez Petrel	2	
White-necked Petrel	3	
Kermadec Petrel		
Phoenix Island Petrel		
Mottled Petrel		
Bonin Island Petrel		
Black-winged Petrel	6	
Bulwer's Petrel	2	
Leach's Storm Petrel		
Red-tailed Tropicbird	1	
White-tailed Tropicbird	2	
Blue-faced Booby		
Brown Booby		
Red-footed Booby		
Great Frigatebird sp.	3	
Lesser Frigatebird		
Golden Plover		
Ruddy Turnstone		
Sooty Tern	65	
Gray-backed Tern		Shear-Pet = 58
Common Noddy Tern		Tropicbird = 3
Fairy Tern	2	frigate = 3
Pomarine Jaeger		Tern = 67
Petrel sp.	9	Misc. = 1
Shear-Pet	9	
bird sp.	1	
		Total Birds 132
		Total Sightings
		Total Flocks 2 (72) Feeding 1 (62)
		Total Species 11 Travel 1 (10)

Flock Data

Time	Type	No.	Composition
1341	F	40	Sooty Tern
1342	T	8	Sooty Tern
1504	T	5	Sooty Tern
1545	T	5	Wedgetail
		<u>58</u>	

Feeding	1	(40)
Traveling	3	(18)
	<u>4</u>	<u>58</u>

Flock Data

Time	Type	No.	Composition
0612	T	10	Sooty Tern
0815	F	62	Sooty Tern 50 Shear Pet 9 Frig sp. 3

Feeding	1	(62)
Travel	1	(10)
	<u>2</u>	<u>(72)</u>

Location $14^{\circ}05'N; 158^{\circ}34'W$ — $12^{\circ}16'N; 158-50'W$
 Observer Clapp + Hackman Date 10 June 1968 Time 0540 to 1915
 Weather Miles 136 Hours 13-35

Location $09^{\circ}53'N; 159^{\circ}00'W$ — $07^{\circ}33'N; 159-12'W$ (22 min)
 Observer Clapp + Hackman Date 11 June 1968 Time 0550 to 1850
 Weather many squalls Miles 126 Hours 12-38

SPECIES	NUMBERS	REMARKS
Laysan Albatross		
Black-footed Albatross		
Wedge-tailed Shearwater	10	7 dark phase; 3?
Sooty Shearwater		
Slender-billed Shearwater		
Christmas Island Shearwater		
Newell's Shearwater		
Juan Fernandez Petrel	4	
White-necked Petrel	2	
Kermadec Petrel		
Phoenix Island Petrel		
Mottled Petrel		
Bonin Island Petrel		
Black-winged Petrel	12	
Bulwer's Petrel	1	
Leach's Storm Petrel		
Red-tailed Tropicbird	1	
White-tailed Tropicbird		
Blue-faced Booby		
Brown Booby		
Red-footed Booby		
Great Frigatebird		
Lesser Frigatebird		
Golden Plover		
Ruddy Turnstone		
Sooty Tern	2	
Gray-backed Tern		
Common Noddy Tern		
Fairy Tern		
Pomarine Jaeger		
Petrel sp.	20	
Shear-Pet	2	
Long-tailed Jaeger	1	
bird sp.	3	
		Shear-Pet = 51
		Tropicbird = 1
		Tern = 2
		Jaeger = 1
		misc. = 3
		Total Birds 58
		Total Sightings
		Total Flocks 4 (26) Feeding 2 (14)
		Total Species 7 Sitting 7 (12)

SPECIES	NUMBERS	REMARKS
Laysan Albatross		
Black-footed Albatross		
Wedge-tailed Shearwater	29	20 dark Ph; 9 unknown.
Sooty Shearwater		
Slender-billed Shearwater		
Christmas Island Shearwater		
Newell's Shearwater ?	1	
Juan Fernandez Petrel	10	
White-necked Petrel	1	
Kermadec Petrel		
Phoenix Island Petrel		
Mottled Petrel		
Bonin Island Petrel		
Black-winged Petrel	7	
Bulwer's Petrel		
Leach's Storm Petrel		
Red-tailed Tropicbird	2	
White-tailed Tropicbird		
Blue-faced Booby		
Brown Booby		
Red-footed Booby		
Great Frigatebird	1	ad. ♂
Lesser Frigatebird sp.	1	Imm. or ♀
Golden Plover		
Ruddy Turnstone		
Sooty Tern	158	2 Imm.
Gray-backed Tern		
Common Noddy Tern		
Fairy Tern	1	
Pomarine Jaeger		
Shear-Pet	1	shear-Pet = 51
Petrel sp.	2	tropicbird = 2
		frigate = 2
		Tern = 159
Cetaceans	35-50	
		Total Mammals = 35-50
		Total Birds 214
		Total Sightings
		Total Flocks 5 (170) Feeding 4 (163)
		Total Species 8 Tracks 1 (17)

Flock Data

0651	F	7	Petrel sp.
0910	F	7	Petrel sp.
1020	S	5	BWP 4 WT 1
1054	S	7	JFP 1 BWP 3 WT 3

Feeding 2 (14)
Sitting 2 (12)

4 26

Flock Data

1241	F	43	ST 36 WT 6 JFP 1
1538	F	14	ST 13 WT 1
1628	F	30	ST 28 WT 2
1800	F	76	ST 70 Fp 1 WT 5
1832	T	7	ST

4 Feeding = 163
1 Travel = 7

5 = 170

Location $04^{\circ}56'N; 159^{\circ}24'W$ — Fanning Island
 Observer Clapp + Mackman Date 12 June 1968 Time 0545 to 1445
 Weather Miles 90 Hours 9-0

SPECIES	NUMBERS	REMARKS
Laysan Albatross		
Black-footed Albatross		
Wedge-tailed Shearwater	5	1 light phase, 3 dark phase, 1 unknown
Sooty Shearwater		
Slender-billed Shearwater		
Christmas Island Shearwater		
Newell's Shearwater	1	
Juan Fernandez Petrel		
White-necked Petrel		
Kermadec Petrel		
Phoenix Island Petrel		
Mottled Petrel		
Bonin Island Petrel		
Black-winged Petrel	8	
Bulwer's Petrel		
Leach's Storm Petrel		
Red-tailed Tropicbird		
White-tailed Tropicbird	1	
Blue-faced Booby		
Brown Booby		
Red-footed Booby	12	
Great Frigatebird		
Lesser Frigatebird		
Golden Plover		
Ruddy Turnstone		
Sooty Tern	13	
Gray-backed Tern		
Common Noddy Tern		
Fairy Tern	35	
Pomarine Jaeger		
Shear - Pet	1	
Petrel sp.	2	
Hawaiian Noddy	1	
bird sp.	1	
		Shear-Pet = 17
		Tropicbird = 1
		Booby = 12
		Tern = 49
		Misc = 1
		Total Birds 80
		Total Sightings
		Total Flocks 1 (7) TF
		Total Species 8

Location $13^{\circ}11'S; 170^{\circ}54'W$ — $11^{\circ}36'S; 170^{\circ}23'W$
 Observer Crossin, Clapp, Mackman Date 6 July 1968 Time 0705 to 1219
 Weather Miles 122 Hours 12-14

SPECIES	NUMBERS	REMARKS
Laysan Albatross		
Black-footed Albatross		
Wedge-tailed Shearwater		
Sooty Shearwater		
Slender-billed Shearwater		
Christmas Island Shearwater		
Newell's Shearwater		
Juan Fernandez Petrel		
White-necked Petrel		
Kermadec Petrel		
Phoenix Island Petrel		
Mottled Petrel		
Bonin Island Petrel		
Black-winged Petrel		
Bulwer's Petrel		
Leach's Storm Petrel		
Red-tailed Tropicbird		
White-tailed Tropicbird	10	
Blue-faced Booby		
Brown Booby		
Red-footed Booby		
Great Frigatebird		
Lesser Frigatebird		
Golden Plover		
Ruddy Turnstone		
Sooty Tern	2	
Gray-backed Tern		
Common Noddy Tern		
Fairy Tern	6	
Pomarine Jaeger		
Pterodroma sp	1	Shear-Pet = 1
		Tropicbird = 10
		Tern = 8
		Total Birds 19
		Total Sightings
		Total Flocks 0
		Total Species 4

Flock Data

FF 1612 47 ST
FF 1622 152 ST 150, LF 1, FT 1
FF 1804 50 ST 5, FT 45

Flock Data

TF 1655 9 ST 5, GBT 3, FT 1
FF 1912 65 ST 60, FT 5

2(74)

Location McKean Is. → 01°-41'S; 175°-23'W - 1430-1750
 Observer Crossin Date 15 July 68 Time 1000 to 1948
 Weather _____ Miles 66 Hours 6-28

SPECIES	NUMBERS	REMARKS
Laysan Albatross		
Black-footed Albatross		
Wedge-tailed Shearwater		
Sooty Shearwater		
Slender-billed Shearwater		
Christmas Island Shearwater	1	
Newell's Shearwater		
Juan Fernandez Petrel		
White-necked Petrel		
Kermadec Petrel		
Phoenix Island Petrel		
Mottled Petrel		
Bonin Island Petrel		
Black-winged Petrel	7	
Bulwer's Petrel		
Leach's Storm Petrel	2	
Red-tailed Tropicbird	1	
White-tailed Tropicbird	1	
Blue-faced Booby	5	
Brown Booby	2	
Red-footed Booby		
Great Frigatebird		
Lesser Frigatebird	1	ad ♂
Golden Plover		
Ruddy Turnstone		
Sooty Tern	178	
Gray-backed Tern	1	
Common Noddy Tern	10	Shear-Pet = 24
Fairy Tern	12	Storm Pet = 3
Pomarine Jaeger		Tropicbird = 2
Audubon's Shearwater	15	Frigate = 10
Shear-Pet	1	Booby = 7
White-th SP	1	Tern = 232
Frigate bird sp.	9	
Hawaiian Noddy	6	
Blue-gray Noddy	25	
		Total Birds 278
		Total Sightings
		Total Flocks 7 (229) 4F (187)
		Total Species 16 3T (42)

Location → Baker Is → Howland Is → 0746 - 0830
 Observer Crossin, Clapp Date 16 July 1968 Time 1345 to 1545
 Weather _____ Miles 32 Hours 3-14

SPECIES	NUMBERS	REMARKS
Laysan Albatross		
Black-footed Albatross		
Wedge-tailed Shearwater	24	all dark phase
Sooty Shearwater		
Slender-billed Shearwater		
Christmas Island Shearwater		
Newell's Shearwater		
Juan Fernandez Petrel		
White-necked Petrel		
Kermadec Petrel		
Phoenix Island Petrel		
Mottled Petrel		
Bonin Island Petrel		
Black-winged Petrel		
Bulwer's Petrel		
Leach's Storm Petrel		
Red-tailed Tropicbird	2	
White-tailed Tropicbird		
Blue-faced Booby	29	
Brown Booby	1	
Red-footed Booby	1	
Great Frigatebird		
Lesser Frigatebird		
Golden Plover		
Ruddy Turnstone		
Sooty Tern	711	
Gray-backed Tern		
Common Noddy Tern		
Fairy Tern	1	Shear-Pet = 24
Pomarine Jaeger		Tropicbird = 2
Frigate sp.	7	Booby = 32
Booby sp.	1	Frigate = 7
Skua	1	Tern = 412
		Skua = 1
Cetacean	6	
		Total Birds 778
		Total Sightings
		Total Flocks 25 (676) T 21 (280)
		Total Species 7 F 4 (396)

Flock Data

FF 1006 11 ST 10, Fsp 1
 FF 1010 113 ST 50, CN 10, AN 6, BGN 25,
 BB 2, AS 15, FT 5
 FF 1055 7 ST 5, BWP 2
 FF 1350 56 ST 50, FT 5, Fsp 1
 TF 1403 5 ST
 TF 1818 31 ST 27, Fsp 4
 TF 1842 6 ST

7(229)
 4 F 187
 3 T 42

Flock Data

TF 0750 6 ST 5, WT 1
 TF 0752 5 ST
 TF 0758 6 ST
 TF 0806 8 ST
 FF 0820 101 ST 85, BFB 6, WT 6, Fsp 4
 FF 0822 130 ST 85, BFB 9, WT 12, Fsp 3, BB 1
 TF 0825 13 ST 9, WT 1, BFB 3
 TF 1359 11 ST
 TF 1420 52 ST
 TF 1445 47 ST
 FF 1453 67 ST 46, FT 1
 TF 1455 8 ST
 TF 1456 12 ST
 FF 1458 98 ST
 TF 1502 8 ST
 TF 1505 9 ST
 TF 1510 19 ST
 TF 1515 5 ST
 TF 1517 5 ST
 TF 1519 9 ST
 TF 1531 16 ST
 TF 1534 10 ST
 TF 1536 6 ST
 TF 1537 20 ST
 TF 1541 5 ST

Flock Data.

TF	1023	5	ST
TF	1210	18	ST
SF	1233	10	ST 9, WT 1
FF	1256	102	ST 100, BFB 1, Fg 1
TF	1310	9	ST
TF	1334	7	ST
TF	1830	12	ST 7, WT 5
F	1915	5	ST 5, WT 1
FF	1952	179	ST 150, WT 25, Fg 4

F 2 (281)
T 7 (67)
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